

UNIVERSAL
LIBRARY



131 352

UNIVERSAL
LIBRARY

THE THIRTY-FIFTH YEARBOOK

OF THE
NATIONAL SOCIETY FOR THE STUDY
OF EDUCATION

PART I THE GROUPING OF PUPILS

*Prepared by the Society's Committee on the
Grouping of Pupils*

WARREN W. COXE (Chairman), HARRY J. BAKER, ROY O. BILLETT, PHILIP A. BOYER,

WILLIAM L. CONNOR, and A. H. TURNER

Assisted by Members of the Society and Others

Edited by

GUY MONTROSE WHIPPLE

THIS PART OF THE YEARBOOK WILL BE DISCUSSED AT THE SAINT LOUIS MEETING OF
THE NATIONAL SOCIETY, SATURDAY, FEBRUARY 22, 1936, 8:00 P.M.

PUBLIC SCHOOL PUBLISHING COMPANY
BLOOMINGTON, ILLINOIS

1936

AGENTS

ESSEX SCHOOL PUBLISHING COMPANY

BLOOMINGTON, ILLINOIS

PUBLISHERS OF ALL THE YEARBOOKS OF THE SOCIETY

COPYRIGHT, 1936, BY

GUY MONTROSE WHIPPLE

SECRETARY OF THE SOCIETY

No part of this Yearbook may be reproduced in any form without written permission from the Secretary of the Society

The responsibilities of the Board of Directors of the National Society for the Study of Education in the case of yearbooks prepared by the Society's committees are (1) to select the subjects to be investigated, (2) to appoint committees calculated in their personnel to ensure consideration of all significant points of view, (3) to provide appropriate subsidies for necessary expenses, (4) to publish and distribute the committees' reports, and (5) to arrange for their discussion at the annual meetings.

The responsibility of the Yearbook Editor is to prepare the submitted manuscripts for publication in accordance with the principles and regulations approved by the Board of Directors in the "Guide for Contributors."

Neither the Board of Directors, nor the Yearbook Editor, nor the Society is responsible for the conclusions reached or the opinions expressed by the Society's yearbook committees.

Published February, 1936
First Printing, 5,000 copies

Printed by the
PLIMPTON PRESS
Norwood, Massachusetts

OFFICERS OF THE SOCIETY

FOR 1935-6

Board of Directors

(Term of office expires March 1 of the year indicated)

GEORGE S. COUNTS (1938)

Teachers College, Columbia University, New York City

FRANK N. FREEMAN (1936)

University of Chicago, Chicago, Illinois

M. E. HAGGERTY, *Chairman* (1937)

University of Minnesota, Minneapolis, Minnesota

ERNEST HORN (1937)

State University of Iowa, Iowa City, Iowa

M. R. TRABUE (1936)

University of North Carolina, Chapel Hill, North Carolina

WILLIS L. UHL (1938)

University of Washington, Seattle, Washington

GUY MONTROSE WHIPPLE (*Ex-officio*)

Clifton, Massachusetts

Secretary-Treasurer

GUY MONTROSE WHIPPLE (1938)

Clifton, Massachusetts

MEMBERSHIP OF THE SOCIETY'S COMMITTEE ON THE GROUPING OF PUPILS

- WARREN W. COXE (*Chairman*), Director, Educational Research Division, State Education Department, Albany, New York
HARRY J. BAKER, Director, Psychological Clinic, Board of Education, Detroit, Michigan
ROY O. BILLETT, Professor of Education, School of Education, Boston University, Boston, Massachusetts.
PHILIP A. BOYER, Director of Educational Research, Board of Public Education, Philadelphia, Pennsylvania
WILLIAM L. CONNOR, Chief, Bureau of Educational Research, Cleveland, Ohio
AUSTIN H. TURNER, Associate Professor of Education, School of Education, University of Kansas, Lawrence, Kansas.

MEMBERS OF THE SOCIETY AND OTHER PERSONS ASSISTING THE COMMITTEE ON THE GROUPING OF PUPILS

- H. B. ALBERTY, Professor of Education, Ohio State University, Columbus, Ohio.
C. T. ANDERSEN, Department of Curriculum and Research, Public Schools, Detroit, Michigan
W. G. BERGMAN, Department of Curriculum and Research, Public Schools, Detroit, Michigan
ORVILLE G. BRIM, Professor of Education, Ohio State University, Columbus, Ohio
F. STUART CHAPIN, Chairman, Department of Sociology, University of Minnesota, Minneapolis, Minnesota
MARGARET I. CONWAY, Research Assistant in Sociology, University of Minnesota, Minneapolis, Minnesota.
ETHEL L. CORNELL, Research Associate, Educational Research Division, State Education Department, Albany, New York.
FRED ENGELHARDT, Professor of Educational Administration, College of Education, University of Minnesota, Minneapolis, Minnesota
HENRY HARAP, Associate Professor of Education, School of Education, Western Reserve University, Cleveland, Ohio
GERTRUDE C. HAWKINS, Research Assistant, Bureau of Educational Research, Cleveland, Ohio
L. THOMAS HOPKINS, Associate Professor of Education, Teachers College, Columbia University, New York, N. Y.
PAUL T. RANKIN, Department of Curriculum and Research, Public Schools, Detroit, Michigan
R. BRUCE RAUP, Associate Professor of Education, Teachers College, Columbia University, New York, N. Y.
EDWARD H. REISNER, Professor of Education, Teachers College, Columbia University, New York, N. Y.

TABLE OF CONTENTS

	<i>Page</i>
OFFICERS OF THE SOCIETY FOR 1935-1936	iii
MEMBERSHIP OF THE SOCIETY'S COMMITTEE ON THE GROUPING OF PUPILS	iv
MEMBERS OF THE SOCIETY AND OTHER PERSONS ASSISTING THE COMMITTEE	iv
EDITOR'S PREFACE	ix
INTRODUCTION	1

Chapter

SECTION I. EVIDENCE CONCERNING THE IMPORTANCE OF PUPIL GROUPING IN SCHOOL ADMINISTRATION

PREFATORY NOTE	10
I. SOCIAL PROBLEMS AND PUPIL GROUPING	11
WARREN W. COXE, Director, Educational Research Division, State Education Department, Albany, New York	
II. PUPIL CLASSIFICATION AS AFFECTED BY ORGANIZATION AND BY ADMINISTRATIVE PRACTICE	19
FRED ENGELHARDT, Professor of Educational Administration, University of Minnesota, Minneapolis, Minnesota	
III. SOCIAL CHANGE AND ITS EFFECT ON SCHOOL ORGANIZATION IN THE UNITED STATES	31
EDWARD H. REISNER, Professor of Education, Teachers College, Columbia University, New York City	

SECTION II. THEORETICAL CONSIDERATIONS INVOLVED IN PUPIL GROUPING

PREFATORY NOTE	40
IV. SOME PHILOSOPHICAL ASPECTS OF GROUPING	43
R. BRUCE RAUP, Professor of Education, Teachers College, Columbia University, New York City	
V. THE SOCIAL GROUP IN EDUCATION	57
F. STUART CHAPIN, Professor of Sociology, and MARGARET I. CONWAY, Research Assistant, University of Minnesota, Minne- apolis, Minnesota	

<i>Chapter</i>	<i>Page</i>
VI. THE PSYCHOLOGICAL BASIS OF GROUPING	81
AUSTIN H. TURNER, Associate Professor of Education, University of Kansas, Lawrence, Kansas	
VII. THE RELATION OF THE NEWER EDUCATIONAL PRACTICES TO GROUPING	117
H. B. ALBERTY, Professor of Education, and O. G. BRIM, Professor of Education, Ohio State University, Columbus, Ohio	
SECTION III. THE ADAPTATION OF INSTRUCTION FOR ABILITY GROUPS	
PREFATORY NOTE	134
VIII. THE PSYCHOLOGY OF ABILITY GROUPS AND IMPLICATIONS FOR INSTRUCTIONAL DIFFERENTIATION	135
HARRY J. BAKER, Director, Psychological Clinic, Detroit Public Schools, Detroit, Michigan	
IX. DIFFERENTIATION OF CURRICULUM PRACTICES AND INSTRUCTION IN ELEMENTARY SCHOOLS	161
HENRY HARAP, Associate Professor of Education, School of Education, Western Reserve University, Cleveland, Ohio	
X. DIFFERENTIATION OF CURRICULUM PRACTICES AND TEACHING METHODS IN HIGH SCHOOLS	173
L. THOMAS HOPKINS, Associate Professor of Education, Teachers College, Columbia University, New York City	
SUPPLEMENT TO SECTION III: COURSE-OF-STUDY BULLETINS AND OTHER MATERIAL	186
SECTION IV. THE ADMINISTRATION OF ABILITY GROUPING	
PREFATORY NOTE	190
XI. THE ADMINISTRATION OF LEARNING GROUPS IN ELEMENTARY SCHOOLS	191
PHILIP A. BOYER, Director, Division of Educational Research, Public Schools, Philadelphia, Pennsylvania	
XII. THE ADMINISTRATION OF GROUPING IN SECONDARY SCHOOLS	217
ROY O. BILLETT, Professor of Education, Boston University, Boston, Massachusetts	
XIII. ABILITY GROUPING IN CERTAIN SELECTED SCHOOLS	247
WILLIAM L. CONNOR, Chief, and GERTRUDE C. HAWKINS, Research Assistant, Bureau of Educational Research, Cleveland, Ohio	

<i>Chapter</i>	<i>Page</i>
SECTION V. EVALUATION OF ABILITY GROUPING	
PREFATORY NOTE	276
XIV. ABILITY GROUPING IN THE DETROIT INDIVIDUALIZATION EXPERIMENT	277
PAUL T. RANKIN, C. T. ANDERSEN, and W. G. BERGMAN, De- partment of Curriculum and Research, Detroit Public Schools, Detroit, Michigan	
XV. EFFECTS OF ABILITY GROUPING DETERMINABLE FROM PUB- LISHED STUDIES	289
ETHEL L. CORNELL, Research Associate, Educational Research Division, State Education Department, Albany, New York	
XVI. SUMMARY AND INTERPRETATIONS	305
WARREN W. COXE, Director, Educational Research Division, State Education Department, Albany, New York	
Information Concerning the National Society for the Study of Education	316
List of Publications of the Society	317
For Constitution of the Society, Minutes of the Atlantic City Meeting, Proceedings of the Board of Directors, Report of the Treasurer, and List of Members, see Part II of this Yearbook	

EDITOR'S PREFACE

In May, 1934, Dr. Warren W. Coxe, Director of the Educational Research Division, State Education Department, Albany, New York, wrote the Secretary, pointing out the need, for those concerned with practical school organization, of a more authoritative and a clearer statement of the problems connected with pupil classification, and in particular with ability grouping. It was felt that this need was becoming keener under present-day school conditions, that there was increasing confusion as to administrative policies and practices over the whole field of pupil classification, and that seeming, if not actual, discordancies in the interpretation of experimental studies and seeming, if not actual, conflicts between the views of practical administrators and research students on the one hand and certain enunciations of educational philosophers on the other hand, all pointed toward the desirability of undertaking to set forth the issues in a yearbook under the auspices of the National Society for the Study of Education.

These views were subsequently presented before the Board of Directors at its Atlantic City meeting (February, 1935) by Dr. Coxe in person, where they aroused general interest and led the Board finally to offer Dr. Coxe Part I of the 1936 Yearbook if he would agree to organize a committee and deliver copy to the editor by the following October. Dr. Coxe, though somewhat startled by this sudden proposal, interviewed interested members of the Society so persuasively that even before the end of the Atlantic City meetings he had accepted the challenge of the Board to produce a yearbook in seven months. To facilitate the undertaking, the Board within a few days formally endorsed the Yearbook Committee on Ability Grouping (or Pupil Classification) with the membership shown on an earlier page and also appropriated funds sufficient to enable the entire Committee to hold three extended meetings and to enable the chairman to confer as needed with individual members and with the editor. This Committee, the editor feels, should be commended for its industry and conscientious work. Would that all our committees were able to accomplish as much in half a year!

The accomplishment just commended was not effected because the task proved easy. On the contrary, difficulties appeared that had not been anticipated. It is not the editor's business to explain what these were; they are described in the Yearbook itself. Nevertheless, just a few words in comment here. Difficulties arising from definition soon

became evident; that type of obstacle the Committee seems to have located and circumvented fairly easily (certainly without leaving the well-known 'gentle reader' lost in the morass of obscurity). Difficulties arising from not always accordant evidence have been met in the only proper way — by presenting the evidence on both sides for the reader's inspection. Difficulties arising from conflicting interpretations, especially from conflicting educational philosophies or conflicting points of view on fundamental educational principles, were also encountered. This situation sets up a problem of committee policy, because there are two defensible courses of action. First, a committee that finds itself, as this one did, in substantial agreement upon all crucial moot issues can obviously gain a valuable clarity, cogency, and coherence—all highly desirable features of educational documents like the yearbooks of this Society—if it writes its own yearbook from cover to cover, leaving to platform discussion, or the attacks of reviewers, or the presentations of other yearbooks, the task of refuting its contentions, disproving its evidence, challenging its catholicity, or whatever may be its faults. Or second, the committee may gain approval for its liberality, broad-mindedness, freedom from prejudice and clannishness, by inviting persons from outside its own membership and known to represent points of view not entirely harmonious with those of the committee to contribute to the pages of the yearbook. That policy has been followed in a number of our yearbooks—for example, that on the Teaching of Science and that on the Activity Movement—but not before, I think, so extensively as in this one.

These editorial comments will perhaps be helpful to some readers who may find this Yearbook inconclusive and at some points perplexing on account of seemingly inconsistent assertions. The point is that the Yearbook could have been made much more authoritative, conclusive, and internally consistent if the Yearbook Committee had had seventeen instead of seven months to write it and if the Committee had itself written the entire Yearbook. Other readers, perhaps the majority, will thank the Committee for giving them a chance to mull over this by-no-means-simple problem of pupil grouping and compare at their leisure the views of a number of our best known educational experts.

G. M. W.

INTRODUCTION

I. SCHOOL PROVISION FOR INDIVIDUAL DIFFERENCES

For a number of years educators have concerned themselves with altering school practices in the light of changing social needs, new scientific knowledge, and new educational theory. Among the problems encountered, the question of adapting education to the great range of individual differences at all age levels has been one of the most persistent and challenging. It is a challenge because it strikes at the roots of educational philosophy.

The literature of educational philosophy contains little discussion of principles basic to individual differences—different levels of individual achievement at any given age. Can a democratic philosophy be evolved that makes provision for the wide range of individual differences known to exist? Meanwhile, the pressing issue of making adjustments for differences in learning rate and capacity keeps recurring, and no general plan or revision of education that claims to be suited to all children has offered a satisfactory program for making these adjustments.

This Yearbook is devoted to the point of view that children do present problems of individual differences; that it is necessary to make provision for them; that a suitable educational philosophy must be developed; that general adaptations of curriculum and teaching method at the various levels of learning ability must find their way into educational processes; and that the class groups in which children are placed have an important bearing on these problems.

While these issues are troublesome to education in a general way, the immediate necessity for grouping children offers an opportunity to provide for more effective child development. Children are everywhere taught in groups. The nature and composition of these groups are matters that demand more attention than they have had in the past.

II. NEED FOR STATING POINTS OF VIEW

Psychologists and practical schoolmen alike are fairly well agreed that the learning characteristics of bright children and of slow children are distinctly different and that their ultimate adult educational needs are also distinctly, if not radically, different. Educators are not agreed, however, as to whether ability grouping is the best way to meet these different characteristics and needs. Furthermore, even those who favor

ability grouping hold different points of view as to how it shall be administered. A clearer knowledge of the conflicting points of view should lead the school administrator to consider all aspects of the problem when putting ability grouping into practice. In addition a clarification of the issues involved should function as a guide to those research workers who wish to experiment further.

In many respects it would seem that some of the crucial problems for education to-day are bound up with the issues centering around ability grouping. For example, one notices that there is a changed attitude toward children. Whereas the teacher and principal were formerly interested in the status of a child in his achievement at any given time and tried to place him in school according to that status, increasingly they are concerned with what he will become and what his ultimate status will probably be and how his placement in school will influence the final result. Furthermore, there has been a distinct tendency to lengthen the period of compulsory education for all children. The recent depression has brought a demand for the education of groups of children even beyond the compulsory age limits. This throws the problem of providing for an increased range of individual differences into sharp relief—a problem the like of which has not been met in this country or any other. Other issues involved in ability grouping hinge upon the solution of problems that are crucial to education in general.

III. BASIC FACTS AND PROBLEMS

There seems to be agreement concerning the basic facts about individual differences with which education, and in particular ability grouping, must deal, but there is wide divergence of interpretation of these facts. Various surveys, particularly the psychological work in the army at the time of the World War, have supplied reliable statistical information about the range of intelligence—information that cannot be brushed aside lightly. The significance of this wide range is not well understood in spite of various studies attempting to interpret the data. For example, one of the studies conducted by the army psychologists and subsequently repeated by others pointed out the differences in average intelligence between different occupational groups. There is little reason to doubt that the semi-skilled laborer today is generally a man of below average intelligence or that the professional man is generally of superior general mental ability. It is known that the man who is able to manage social and civic affairs

successfully is above the average man in intelligence. Possibly, even though the cold facts are known, there is still some lack of full appreciation of their significance in social organization. There certainly is confusion in regard to the use of these basic facts in education.

The points at issue here can be made somewhat clearer if we trace briefly typical life histories of average, bright, and slow individuals. These are composite pictures based upon the experience of clinical psychologists and upon clinical reports of children, some of whom have been followed for a number of years after leaving school. They represent points in a distribution of individuals with varying intelligence. There will be many deviations from these generalized pictures.

BRIEF SKETCH OF AN AVERAGE PERSON

The average child probably began walking at about twelve months of age, first talked at about fifteen months, made normal contacts with children and adults at from two to three years of age. He was neither exceedingly shy nor exceedingly aggressive.

He started in the first grade of school at about six years of age. He passed the first, second, and third grades, though with some reading difficulty requiring special attention on the part of the first-grade or second-grade teacher. He had some difficulty in the intermediate grades and was obliged to repeat a half year when he reached the seventh grade. If he entered the high school twenty years ago, he probably dropped out after a year or so. If recently, he probably continued through the high school, but if the college-entrance course was attempted, the chances are that he failed in algebra and found Latin difficult. All his marks were rather low. Because of these difficulties, he substituted other subjects somewhat more vocational in nature. He may have made above average marks in one or two subjects in which he was particularly interested.

If this average individual attempted to go to college, he found only a few to which he would be admitted. However, he probably became discouraged and dropped out before the end of the first year. He then was obliged to consider the matter of going to work. If he was mechanically inclined, he may have worked for a time as a helper and later became a skilled mechanic. There was a very good chance of his becoming a salesman or doing clerical work and possibly becoming the proprietor of a small business. He was able, probably, to make some advancement, but not likely to become an executive and never could do highly complicated technical work. He may have been considered a steady, dependable, faithful worker. His income was probably less than \$2000 a year, even after considerable experience.

Socially he probably became a leader of certain small groups in the neighborhood, in the church, and possibly in athletics or in local politics. There

is little likelihood that such an average person ever became a leader of a large group or was known outside of a relatively small community. His reading was limited. He probably read only the local newspapers, particularly the social news, scandal, and funnies. He read some fiction in magazines, possibly was interested in mechanical journals and a few books of light fiction, especially stories of adventure. He liked to attend and participate in athletic events, but in most forms of recreation he tended to be a spectator rather than a participant.

BRIEF SKETCH OF A BRIGHT PERSON

The bright, or superior, child probably began talking earlier than usual and showed special ability in putting sentences together to represent connected thought. He was likely to be very independent in learning to do things for himself. Probably this independence attracted greater attention from the parents, who in turn became over-solicitous and tended to make the child over-dependent for a long time.

The bright child probably started to school at about the same age as average children, but could read a little before beginning. Generally throughout his school life he was considered an average student, making no failures through the course. He probably learned easily with little study and had some curiosity to find out about things he did not know. At times he appeared to be uninterested in school and may have caused some trouble because he was inattentive. Teachers may have said he could do better work but did not try. In the high school he did average or above-average work. He did his school work easily and got the impression he could succeed without much effort. He had the respect of his fellow pupils and became a leader in student affairs, school publications, etc. He showed some initiative in doing things outside of school, possibly building airplanes, making radios, etc. He probably was interested in athletics and possibly in music. He was interested in preparing for college. He may have continued in college and graduated or he may have transferred to some other school, such as a technical school, and probably graduated. In any case he made about average or above-average marks.

Upon finishing college his interests led him to enter some profession or to prepare for an executive position. Although this superior individual may have started rather low, his progress was quite rapid, particularly if he had the necessary personal qualifications. His salary was probably in excess of \$3000 a year.

The social contacts of such a bright person were probably varied. He may have manifested some interest in public affairs, sometimes being very critical of them; or he may have been engrossed in his own advancement and intolerant of other interests. He probably established a home, showed interest in social and economic advancement and desired to give his children every possible advantage. He may become a leader not only in local affairs

but also in some organization of state or national scope. His reading interests were wide and he tended to become an active participant in recreations.

BRIEF SKETCH OF A SLOW PERSON

The dull child was probably a little late in learning to walk and likely a little slow in learning to talk. He was probably shy in making social contacts. His parents may have tended to push him to do things before he was quite ready.

He probably started school at about the same age as the average or bright child but seemed somewhat immature. He adjusted himself to the school situation rather slowly and found it difficult to do first-grade work. As a result, he probably repeated the first or the second grade and then went on without any particular difficulty until the fifth or sixth grade, when again he was obliged to repeat a half year to a year. Although he probably was not interested in reading or at least found it difficult, and also sometimes had difficulty in arithmetic, he may have had certain special fields of interest in which he did very well. Some years ago this type of person would have dropped out of school at the fifth or sixth grade unless there was great pressure on the part of parents or friends. Now he enters the junior high school and is offered work of a definitely non-academic character. Sometimes to-day he gets into the senior high school but fails miserably to do work on the college entrance standard. It is rare that he attempts to enter college. His school experience was discouraging and tended to make him feel the futility of effort.

After finishing school, the work this slow individual undertakes is apt to be of the unskilled or semi-skilled type. It is sure to be routine and may be of a blind-alley type. He may make good advancement within a limited field if he has special ability and good personal qualifications. He probably belongs to the class of workers that changes jobs frequently. His income is variable. Very rarely will he get as much as \$2000 a year but part of the time he is likely to be without work of any kind. The slow person is apt to be restless in his social contacts, partly because of his low economic level. He will tend to follow blindly any offer of improvement even though it has no sound basis. Provided he has desirable personal qualities and fair economic security, he may appear to be among the stable, semi-skilled classes—a happy, thrifty citizen. It is rare that he shows any quality of leadership except in very small groups, and he often shows poor judgment in selecting his companions. He reads very little, possibly looking at the newspapers for the funnies and the ads. He goes to the movies of the cheaper variety. Chance may lead him into wholesome recreational groups, but just as likely he will be led into groups which have an unwholesome influence.

The foregoing composite pictures of average, bright, and slow persons are fairly typical. Circumstances will vary the fortunes of in-

dividuals and confuse the clearness of the pictures presented; but, granting fair agreement that the life histories are about as represented, one must raise the question what education should do for individuals who differ from one another to this extent.

It is difficult to discuss this question without being branded with a philosophy of determinism. A deterministic philosophy, however, would say that the educator should decide early in the child's life the type of career the child is likely to follow and then advise and guide him in accordance with this determination. The implication of the facts just presented is not necessarily a deterministic one. One might with some justification say that the facts indicate the need for such a type of school organization as will offer sufficiently varied conditions so that the child can find himself in the school organization in the same way that individuals find themselves in society (when they do) after they have left school. However, it would be more economical and desirable educationally to encourage wide exploration on a child's level of understanding and skill than to allow him to explore the entire range of human possibilities. Giving complete latitude would be about as ineffective as expecting cattle who range in their feeding from short grass to tall grass suddenly to widen this food range to include the digging of potatoes and browsing off the treetops. Some sort of grouping, therefore, seems necessary; and it is clear to most educators that grades as organized in most school systems do not offer satisfactory teaching groups to meet the present problems.

IV. THE FUNCTION AND ORGANIZATION OF THIS YEARBOOK

This brief discussion indicates that the problem of pupil classification, or grouping, has manifold ramifications and touches finally every field of education. The truth of this statement and the difficulties that are inevitably involved in devising any plan of grouping became increasingly apparent to the Committee as it proceeded with its work. While all the members of the Committee believed in ability grouping, at the beginning of their work together they held divergent points of view as to the principles that should underlie grouping and the administration of it. As these points of view were examined, the reasons for the divergence were seen to lie in the interpretation given to the known facts by persons with different philosophical, psychological, and sociological backgrounds, as well as in the lack of adequate facts in some of these fields and in the lack of a clearly worked out conception of the interrelation of the fields. The need for considering related

material from many areas, therefore, became obvious. No point of view examined seemed to bear the stamp of completeness, but each one has some unique contribution to make. It was agreed, therefore, that one of the chief objectives of the Yearbook should be that of collecting and presenting points of view. It seemed desirable, however, to go further and to present trends, concepts, and scientific findings upon which pupil grouping might be based.

In order to present all points of view, the Committee planned to have certain chapters written by others than Committee members. These contributors did not have the advantage of the Committee discussions or of the elaborate interchange of correspondence within the Committee, although the Committee members had the advantage of reading the manuscripts of these contributors. Greater agreement might have resulted if there had been opportunity for more discussion.

During the six brief months that the Committee had at its disposal for work upon this Yearbook, it held three two-day meetings. It thus spent between forty and fifty hours in discussion of the problems of grouping and in planning the Yearbook. In addition to these meetings there was, as just indicated, a great amount of correspondence between members. Every chapter of the Yearbook was read and criticized by every member of the Committee. This made it possible for the chapters prepared by members of the Committee to be rewritten in the light of these criticisms and in the light of the contributions by the non-members. In spite of all this discussion and correspondence, the Committee has been unable to clear up certain issues. For example, it will be noted that the practical application of grouping in many public schools is not always consistent with theory; reversely, it will be equally evident that theory has not taken cognizance of the practical issues with which the schools are faced. The Committee is convinced that with more time and more opportunity for interchange of opinion much greater unity of the presentation could have resulted. It, therefore, would recommend that the Society consider the preparation of another Yearbook on the same topic about five years from now.

All members of the Committee are in entire agreement that methods of grouping pupils represent a crucial administrative problem. The Committee sought evidence for this in the nature of current social problems, in the problems of school administration, and in the historical trends of school organization. This evidence is presented in Chapters I, II, and III.

The point of view one holds with respect to grouping is likely to be

controlled by one's basic concepts of the function of education and the nature of the educational process. There has been an attempt, therefore, in Chapters IV, V, VI, and VII to approach the subject of grouping from a number of different angles — the philosophical, the sociological, the psychological, and the relationship of grouping to Progressive Education. In these four chapters the contributors (four of them invited contributors) have obviously exhibited markedly different attitudes with regard to ability grouping. Although it might have been possible that other authors would have arrived at other conclusions, the material presented by these contributors, nevertheless, is representative of certain philosophies and of certain educational practices and should be given serious consideration by anyone who purposes to set up a plan for grouping school children.

Some variety of ability grouping is widely used as one of the ways in which pupils are grouped for the purpose of effective learning. Many practical problems arise in the effort to put this kind of grouping into effect. In Chapters VIII, IX, and X there are presented some of the problems related to curriculum construction, adaptations of teaching methods, and teacher qualifications. In Chapters XI, XII, and XIII will be found discussions of practical solutions of some of the administrative problems of ability grouping.

Chapter XIV presents a brief account of an extensive experiment in which ability grouping was evaluated. Chapter XV is a critical evaluation of the scientific literature on ability grouping.

The final chapter, "Summary and Conclusions," is an attempt to set down the elements that are essential to a philosophy of ability grouping, to reconcile as far as possible some of the more important conflicting points of view, and to present certain tentative recommendations for the administration of grouping.

For the Committee,

WARREN W. COXE, *Chairman*

SECTION I

EVIDENCE CONCERNING THE IMPORTANCE OF
PUPIL GROUPING IN SCHOOL
ADMINISTRATION

PREFATORY NOTE

In Chapter I, Doctor Coxe has briefly analyzed several social problems to show that individual and group differences are a social phenomenon and must be given recognition in school organization. To some degree the kinds of differences manifested in society should be reflected in the work of the school. Chapin and Conway present further evidence on the nature of social groupings in Chapter IV. The reader must be on his guard to note the varied uses of the term 'group' here and throughout the Yearbook. Sometimes those individuals who perform similar functions in society are called a group, as in Chapter I; sometimes a group is defined as made up of individuals who have a common purpose or interest; and sometimes there is a tendency to think of a group as a mere aggregation, with or without any sociological connotation.

In Chapter II Professor Engelhardt has raised a number of administrative problems that bear upon pupil grouping. He shows that grouping ramifies into many phases of education. He emphasizes not only the importance of grouping, but also the importance of the many correlated changes that must be made in a school system when any new scheme of grouping is introduced.

Even with full recognition of the relation of pupil grouping to current social problems and to problems of school administration, one must bring about changes in an evolutionary rather than a revolutionary manner. It is necessary, therefore, to know how changes in classifying pupils have come about historically. Professor Reisner, in Chapter III, shows what influences have been influential in bringing about past changes. If the trends he presents are kept in mind in bringing subsequent chapters, one will have a better background for judging the kinds of changes that are practical. For example, the reader will have a basis for determining whether grouping, particularly ability grouping, can be engrafted on the present graded system or whether it may be necessary to examine and redefine grade grouping.

W. W. C.

CHAPTER I

SOCIAL PROBLEMS AND PUPIL GROUPING

WARREN W. COXE

Director, Educational Research Division State Education Department
Albany, New York

Studies of current social and economic problems have shown the need for greater consideration of the way in which pupils are grouped in school. By a consideration of selected aspects of social and economic issues, it can be readily shown that problems of pupil grouping emerge out of current social problems. From the numerous aspects there have been selected for discussion here problems of a democratic society, of government, of industry, of human biology, and of delinquency.

I. PROBLEMS OF A DEMOCRATIC SOCIETY

The form of our government has been controlled largely by our notions of a democratic society. Whether we take the position that our idea of democracy has changed in the hundred and fifty years since the founding of our United States or the position that democracy has been misinterpreted, it is clear that certain democratic concepts that are generally subscribed to to-day should be analyzed clearly to see whether they have any desirable implications for education.

Democratic concepts were an outgrowth of the reaction against the caste society of the feudal period. These concepts centered around the idea that the individual of ability should be given the opportunity to elevate his social status. They implied that the individual of inferior capacity would find his place in lower orders of the social scale. In medieval times there was a hereditary class alignment of aristocracy, clergy, tradesmen, artisans, freeholders, and serfs. There was little chance of movement from social level to social level, even though it is a safe assumption that there was much overlapping in ability between the upper classes and the lower. The industrial revolution was followed by an increase in the numbers and wealth of the middle classes of merchants and traders. This brought about a greater mobility of individuals in the social scale. In the beginning, democratic ideas

grew out of the belief that the main causes of differences in social status lay in differences in environmental conditions.

During this period of the development of a democratic society, there evolved a conception of democracy that is essentially more than a form of government — it is an ethical concept, a concept that elevates the worth of the individual, demands that he be counted as a person and be so treated. The expression of this concept in our political philosophy frequently has used such words as 'freedom' and 'equality' or 'liberty' and 'fraternity.'

The philosophy that gave rise to the expression, 'free and equal,' has been presented by Professor Townsend¹ in a previous Yearbook of this Society. During the middle of the seventeenth century, philosophers were defining individuality as the principle of organization in nature. "As men became convinced that each thing, however insignificant, was an irreplaceable unit of organization, they got a new sense of value and a respect for all things, including man." The doctrine of freedom maintained that the individual had an inalienable right to be himself; that is, to allow the principle of organization to operate within himself in a way peculiar to himself.

This philosophy recognizes individual differences. As Rousseau puts it: "Apart from general human characteristics, each individual is born with a distinctive temperament which determines his genius and character. There is no question of changing or restricting this temperament, only of training it and bringing it to perfection." There are both the strong and the weak, but they are equal in value — each has rights that the other must respect.

Thus it would appear that, from the standpoints of the history of the democratic idea and of the philosophy of democracy, grouping of pupils and individualized instruction have ample warrant. In fact, a failure to conduct education in such a way as to allow freedom of individual development would be a disregard of democratic principles.

In the course of putting democratic ideals into actual operation in this country certain misinterpretations have developed. These need to be understood before it can be made clear just what relationship democracy has to pupil grouping.

It was natural that in establishing our government the founders sought so to organize it as to prevent so far as possible for all time to come the development of tyrannical rule. It was natural that they

¹ Harvey G. Townsend. "The Democratic Idea and the Education of Gifted Children." *Twenty-Third Yearbook* of this Society, 1924, Chapter VIII.

should have emphasized a government by law rather than a government by men. In various ways it is now apparent that they sought to create a government in which every citizen could be assured of social justice interpreted as a legal safeguarding of his civil rights and property. Every individual was considered the equal of every other individual before the law. Although in the beginning 'equality' referred to equality before the law, its range of application was soon extended. However, as we have seen, the philosophy of democracy did not originally maintain equality in every respect.

As the democratic idea caught the imagination of the masses, it soon came to be looked upon as a means of social advancement, rather than as a new concept of social organization. Philosophically, the true bases of democracy were neglected in the interests of new classes. The effort to use democracy as a means of social advancement indicated that the old class notion still persisted and that what people wanted was social prestige.

'Freedom' and 'liberty' were fundamental tenets of democratic philosophy, but they soon were extended so greatly as to constitute a threat to equality and fraternity. Probably the nature of this new country, the frontier life, the development of what has been known as 'rugged individualism,' gave sanction to such an interpretation. Because the people were scattered sparsely over a wide territory, social organization did not appear necessary. It is only as our population has grown and we have developed more compact communities that the need for social organization has become more apparent. The over-development of freedom or liberty carried with it disregard for the rights of others.

It is apparent also that we have misinterpreted the democratic concept of 'fraternity.' Fraternity has too frequently meant conforming to certain social amenities. It has not led to as much tolerance, sympathy, and coöperative action in the interests of society as a whole as could be hoped for. As democracy has worked out in this country, we have seemed to make law instead of man responsible. Frequently it has been said that if we can get a law passed, an evil will be cured, when as a matter of fact it is only as men feel responsible for the welfare of society that changes are brought about. We need leaders who will not only command the confidence of the people but work for the general social good.

In any reinterpretation of democracy today we must distinguish carefully those aspects of society in which the term 'equality' can

rightfully be applied from those aspects in which it is irrelevant. We must emphasize the value of every individual and the fact that he is entitled to as much consideration from our social organization as any other individual, but in this social organization we must realize that no two individuals will function exactly alike. We must recognize differences between individuals and groups of individuals and be more specific as to their distinctive functions.

If we are serious in a desire to interpret democracy in present-day terms, education must offer not the same program to all, but an equal opportunity for all varieties of interests and abilities to find and develop their potentialities. This interpretation does not imply that the school should decide the destination of pupils; it is the responsibility of the pupil to find his place under guidance in a wide variety of offerings. The school must help all levels to work together harmoniously, realizing that each level and each individual is but part of a great social organization. Groups so organized that pupils can work together within them, and at the same time develop the techniques of group interaction, can have a definite part in building up this kind of democratic social order.

II. PROBLEMS OF GOVERNMENT

This country was founded as a reaction against tyranny. Our founders introduced into their governmental machinery a system of checks and balances that would make it impossible for any official to control the forces of society. This naturally meant a comparatively weak government; one that was impotent to cope with large and complex problems as they arose, except as the people of the country as a whole became informed and public sentiment was developed. Our representatives in government then voted in accordance with public sentiment.

As we trace trends in our government, we note that in some respects it is beginning to adopt the type of organization that has proved successful in industry. Authority is becoming more centralized. Generally to-day law-making bodies are losing the confidence of the people. To some extent one finds that courts have also lost popular confidence because they have appeared to favor the powerful few against the less powerful majority. As legislatures and courts have waned in their influence, the executive has grown. He often has gained a skilled staff and has a greater control over legislation.

During the last few generations the problems concerning govern-

ment have increased in complexity. This has required special training and broad experience and is in marked contrast to what apparently was the concept of government held by our forefathers. Often, within the recollection of a great many of us, men were elected to public office who could neither read nor write. We did not seem to want people to rule us who knew more than we did, possibly because training and special qualifications do not always carry with them any greater sense of social responsibility. This has been gradually changing. We now find in our laws and civil service practices definite minimal qualifications set up for many positions.

We should have leaders who have the public welfare at heart and are capable of formulating broad policies. Those who are not to be in positions of government leadership must be able to select leaders wisely and to put their trust in leaders who are well qualified.

The trend of government, as of other social institutions, indicates that the various kinds of work and the various degrees of responsibility are bringing about groups with differentiated functions. *What scheme of pupil grouping will best teach pupils to live together in interacting groups with differentiated functions but mutual responsibilities?*

III. INDUSTRIAL PROBLEMS

In view of the unprecedented industrial development that has taken place in the United States and other countries of the world during the last century, it is well to consider the bearing of this growth upon education. Before the development of machines it was necessary for man to do the work of machines. The early factories contained few machines. Men, through intense specialization, functioned as machines. Inasmuch as a machine is capable of replacing man in many kinds of work, it seems reasonable that we should expect education to train man in those respects in which he differs essentially from a machine. Man differs from machines in the capacity for flexibility of functioning. It is because of this capacity that he can adjust himself to do many things. But it is with respect to this capacity for complex functioning that men differ most from one another. Our educational problem is, therefore, one of developing the pupil's capacity for complex behavior. The need is one of integration—integration in personality development, in character training, in emotional adjustment, and in problem-solving (thinking). The question naturally arises: How can pupil grouping aid the integration of personalities of pupils who differ widely in the complexity of their functioning?

The increased size of industry, together with the development of machines, has given rise to other problems. Whereas we at one time thought of the owner-worker relationship, we now find that the owner is very far removed from the industry and that the distance between the owner and the worker has been very much increased. There has arisen between these two another group that is growing in numbers and in influence; it may be called the 'expert-executive' group. Its members are neither workers in the old-time sense nor are they necessarily owners. Both worker and owner, however, are dependent upon them, because they formulate policies and are responsible for the efficiency of the operation of the industry. In this group belong not only the administrators, foremen, managers, but also the technicians, such as the chemists, physicists, engineers, and others. With the growth in size of industrial units, the responsibility of this group is gradually increased.

There is another characteristic of this group important to consider here. Whereas the owner-worker relationship was one based largely upon authority, the expert-executive-worker relationship is based upon knowledge and training. To-day the manager obtains his position because he is trained, usually outside the industry itself. He is trained in the schools.

Instead of determining procedures by tradition or custom, we are face to face with new methods that we call 'scientific.' We do not do things because they have always been done that way, but because the findings of science warrant it. All this involves a new outlook and a new type of training that the schools must recognize. Instead of looking to the school to function solely as the agent to preserve the inheritance of the race, we must look to it also as an agent to guide us into new ways of thinking and new ways of doing. The development and application of the scientific method puts a greater premium upon intelligence than the traditional rule-of-thumb methods. It would appear, therefore, that individuals with high intelligence have a different and specialized function to perform in society. The question therefore arises: what type of pupil grouping will facilitate the differentiated kinds of training that are obviously necessary for our present-day industrial system.

IV. PROBLEMS OF HUMAN BIOLOGY

Our concepts of groups in a democracy must rest fundamentally upon the facts of human biology. It is not possible to have a single or uniform contribution from individuals in society if, biologically, human

beings differ widely from one another. It is not possible to have a democracy, a fundamental tenet of which is that leaders may be recruited from all classes of society, if leadership is limited by a caste system.

What knowledge we have of heredity has perhaps led to an over-emphasis upon the likenesses of parent and offspring. It has long been known, however, that children of parents of superior ability do not on the average seem to possess as great superiority; children of parents of inferior ability manifest on the average somewhat higher ability. There is, in other words, some tendency for ability on the average to regress toward the mean. However, there is a conflicting tendency for individuals to vary more widely from the mean than their parents. Without going into the matter technically, and realizing that our knowledge is still incomplete, it is appropriate to suggest that we have given altogether too little consideration to the vertical movement in society of the individual members of families. If we find that leaders may appear in the lower classes of society and that the children of parents in the higher classes may sometimes manifest a decided lack of leadership, one of the big tasks is to capitalize ability for leadership wherever it may be found and discourage the control of society by people unqualified for such position.

If we attempt to analyze what we mean by qualities of leadership, we are soon confronted with the idea that it is more than native intelligence. It seems to be made up of a complex of factors, weakness in any one of which tends to reduce the amount of leadership. Biologically, then, human beings would vary from one another in the possession of those qualities that go to make up leadership. It is the task of education to see to it that all latent qualities of leadership shall be developed for the benefit of society.

Again, education, although it cannot control human biology, should recognize its findings in the provisions made for pupil development both as to subject matter and as to group contacts.

In what sort of groups will these qualities of leadership and followership be developed? Are different kinds of groups necessary for the development of the latent qualities of leadership in different individuals?

V. PROBLEMS OF DELINQUENCY

Studies of juvenile delinquency are in fair accord in permitting certain outstanding interpretations. In general, it is found that the juve-

nile delinquent averages low in intelligence and in achievement, but the distribution of both is wide. While we cannot assign low mental ability as the sole cause of delinquency, nevertheless failure of the juvenile delinquent to do the school work expected of him is a chief factor in his delinquency. With our traditional school organization we do not meet the situation adequately by demoting the pupil a grade. Although by doing this we would give him easier work to do, we would place him with children who were younger and thereby do violence to his personality. To the student of juvenile delinquency there is always the desire that the school offering shall be better calibrated to the ability and needs of the pupil. This implies a differentiation of offering and standards and the guidance of pupils into appropriate classes. The schools can be held directly accountable for a certain amount of crime and even of insanity because, in holding up an identical standard of achievement for all pupils and in failing to recognize individual differences, they have forced many to acts which are asocial in order to maintain their self-esteem. No amount of formal instruction through textbooks or through precept can overcome this inadequacy.

To what extent can a different method of pupil grouping satisfy the reasonable social and educational urges of the potential delinquent and maladjusted groups?

VI. SUMMARY

People function in groups; thus human relationships and human understandings that grow out of experiences with other persons are important. The thesis could be defended that the way in which pupils are grouped for instruction is as important for the pupils as the subject matter they study. Through this survey of a few recent social problems, it is to be noted that from such varied standpoints as the development of democratic ideas, government, industry, our knowledge of human biology, and the menace of crime in this country, variation in the educational treatment of children seems to be indicated. The situations in which children are taught need to be studied. Individual and group differences must be emphasized rather than minimized in our educational procedures.

CHAPTER II

PUPIL CLASSIFICATION AS AFFECTED BY ORGANIZATION AND BY ADMINISTRATIVE PRACTICE

FRED ENGELHARDT

Professor of Educational Administration
University of Minnesota, Minneapolis, Minnesota

A review of the literature on pupil classification from the time of Boykin's¹ study to the present time reveals (1) a wide breach between the expressed need for reform and the actual conditions, (2) a great persistence of traditional practices, and (3) a strong tendency for old practices, with their recognized limitations, to carry on side by side with new and progressive practices. As late as 1930, when Otto made a nation-wide canvass of administrative and organizational practices in the elementary schools in small cities, there was but little evidence that pupil classification had kept pace with other changes.²

I. PUPIL CLASSIFICATION CONTINUES TO PROVIDE TRYING PROBLEMS

The most desirable plans for classifying pupils in public elementary and secondary schools are yet to be devised. Many paradoxical situations and many inconsistencies now exist in the ways in which children are grouped for instructional purposes. There are administrative devices that were once introduced into the schools to correct some weakness in practice and that are continued even though they produce new complications. Semi-annual promotion plans are good illustrations of this point. From evidence found in contemporary investigations³ it ap-

¹ J. C. Boykin. "Class Intervals in City Public Schools," *Report of the Commissioner of Education*, Washington, D. C., 1890-1891, Vol. 2, p. 962.

² H. J. Otto. "Current Practices in the Organization of Elementary Schools," from Manuscript Copy of Doctor's Thesis, University of Minnesota Library, 1931.

³ F. C. Ayer. *The Progress of Pupils in the State of Texas, 1932-33*. Austin, Texas, Section of Superintendence of Texas State Teachers Association.

H. L. Caswell. *Non-promotion in Elementary Schools* (Field Studies No. 4, George Peabody College for Teachers, 1933).

J. A. Lindsay. *Annual and Semi-Annual Promotion* (Teachers College, Columbia University, 1933).

H. J. Otto. "Report of Inquiry Concerning Promotion Plans in Oak Park, Illinois, Elementary Schools." Manuscript copy of the report by author, 1935.

pears that shorter promotion intervals have no distinct merit as an aid to effective promotion or as a means of reducing retardation and failure.

One may determine the status of the pupil-classification problem in schools by selecting recent studies and surveys at random and observing the findings and the comments of the investigators. For example, concerning ability grouping, one has no difficulty in showing that, within the same city or even within the same school in which ability groupings are made within grade groups, there is little actual distinction among groups designated as 'bright,' 'average,' or 'slow.' In one school selected for study a bright class was found to rate lower than classes organized for average pupils in a neighboring school, while data chosen in yet another school show that 50 percent of a class organized for the slow pupils exceeded the norm for the grade from which the slow pupils were taken.¹

Data on the achievements of pupils in graded elementary schools as reported in many surveys also reveal marked inconsistencies. Reading abilities of pupils in a single grade may range from fourth grade through grade twelve.²

A study of pupil classification in villages in New York State shows that pupils in the same grade differ very markedly in ability to do the work set for that grade. For example, some of the most able pupils in the fourth grade in certain schools appeared to be doing as well as pupils two, three, or four grades further advanced, and pupils in higher grades were found who were unable to do as well as the median set for the fourth grade.³

There are issues that relate to chronological age-range for a given grade that appear yet unsolved. Two studies made in different sections of the country indicate that the ages of pupils admitted and carried along in regular fashion in the first grades range from four to eight years and from four to nine years, respectively.⁴ Another study, se-

¹ F. P. Graves. "Evaluation of Achievement," Part II of a report of a study of New York City Schools (University of the State of New York Press, 1934), p. 28.

² Fred Engelhardt and E. O. Melby. *Supervisory Organization and Instructional Program*, Albert Lea, Minnesota (University of Minnesota Press, 1928), p. 27.

³ W. W. Coxe. *A Study of Pupil Classification in the Villages of New York State* (University of the State of New York Press, 1925), p. 30.

⁴ G. D. Strayer and others. *Report of the Survey of Schools of Holyoke, Massachusetts* (Teachers College, Columbia University, 1930), p. 207. *Report*

lected at random, reports that the ages in a fourth grade range from 9 to 16 years and in a fifth grade from 9.6 to 17.6 years. This gives ranges of seven and eight years, respectively, in chronological age, while the ranges in mental age are 3.5 and 6.0 years.¹

Recent studies in the progress made by pupils through school reveal cases in which the percentages of overage pupils are 22, 40, and 44 for grades one, three, and five, respectively.² Similar data summarized for the public schools of the city of Minneapolis show overageness, expressed in percent, for the years 1918, 1921, 1924, 1930, and 1933, to be 28.6, 39.4, 33.3, 28.1, 24.7, and 28.1, respectively.³

Mort and Featherstone report overageness in a number of city school systems as 9.8, 21.6, and 22.5 percent for Grades I, V, and VIII, respectively.⁴

One may trace a marked decrease in the percentage of pupil failure in schools as the records for past years are reviewed. For current years the failures in elementary schools are reported as ranging from about 20 percent in the first grade to about 3 percent in the eighth grade.⁵ A study recently made of promotional practices in thirty-five northern Illinois school districts, excluding Chicago, shows that 48 percent of the children in the fifth grade had repeated one or more grades in semi-annual promotion schools, while only 15.7 percent of the pupils in the fifth grades had records showing repetition of work in annual promotion schools.⁶

II. FAILURE TO RECOGNIZE THE DYNAMIC NATURE OF ORGANIZATION

The status of pupil classification in the public schools, revealed by the facts just cited is well known by educational leaders and students. Although recent studies of pupil classification show considerable prog-

of the Survey of Schools of Chicago, Illinois (Teachers College, Columbia University, 1932, Vol. II), p. 18.

¹ T. S. Montgomery. *Mentality and Achievement of Pupils, Goose Creek Public Schools, Texas* (Sam Houston State Teachers College, 1928), p. 35.

² The Holyoke Survey, p. 214.

³ From file records of Public School Research Office, Minneapolis, Minnesota.

⁴ P. R. Mort and W. B. Featherstone. *Entrance and Promotion Practices in City School Systems, Standards and Accounting Procedure*. Teachers College, Columbia University, 1932.

⁵ See Chicago Survey and Mort and Featherstone.

⁶ H. J. Otto. *Promotional Practices in the Elementary Schools of Thirty-five Northern Illinois School Districts excluding Chicago* (Educational Test Bureau, Minneapolis, Minnesota, 1935), p. 54.

ress since the time of Boykin's analysis, one is constantly aware that certain phases of the problem of classification are hardly touched upon.

Many of the unsatisfactory outcomes of current school practices arise from the inconsistency with which sound educational doctrine is applied and from the failure to abandon antiquated administrative machinery that interferes with new educational practices. Observation of those schools in which drastic breaks with traditional practice have produced new forms of organization seems to indicate that adequate handling of pupil classification can be developed only as the entire school organization is revamped. In other words, corrective measures applied here and there in the schools will not necessarily produce the remedy for unsatisfactory outcomes of classification practices. Ability grouping is a good example. It has often been introduced without a parallel revamping of our traditional concept of a grade. A study of such innovations as the kindergarten, semi-annual promotions, certain specialized curricula in secondary schools, special classes of all sorts, guidance and other services shows that the weaknesses they were designed to correct were not necessarily alleviated in the manner presumed. In many instances they produced new classification problems, so that still other changes were necessary to correct the conditions created by their introduction.

Frequently remedial practices or innovations in organizations are introduced on the wave of reform and on the advice of leaders in education. Once introduced, they are carried on year after year without testing them to see if the ends sought are being served. Many times new practices are introduced into the schools without studying their relation to the existing organization and its administration. It has been rare that new practices have been tried in the schools on an actual experimental basis.

It is believed that an adequate fulfillment of the educational program created for the public schools will be possible only when the organization and the administration of the schools are viewed as being as flexible as is the instructional program. Advances in education must be made on a common front; the educational program, the organization, and its administration must be developed together. The school district organization, the teacher-classroom plan acceptable in a school, the school plant, and the administrative units devised for the schools are among the factors that are determinants of procedure in pupil classification. Unless the problems relating to these and to other correspond-

ingly important aspects of public-school administration are adequately solved, corrective and remedial devices that are introduced to make it possible for the schools to serve pupil needs better will fail or become ineffectual because of their cost.

The practice of ability grouping must be viewed in the light of the foregoing. It is unlikely that it can be introduced successfully into a school organization without more or less extended changes in other school practices. It will be necessary to consider the bases of promotion, the meaning of a grade, the system of marking, the changes that should be made in the course of study, and the possible necessity of providing other types of grouping as well.

III. SMALL LOCAL SCHOOL DISTRICTS AND PUPIL CLASSIFICATION

The size of the local school district determines in a marked degree the plans that may be adopted in a school for the classification of pupils for instruction and other purposes, because of differences in number of pupils and in the availability of supervisory and administrative services. Size of school district in itself does not relieve the schools from serious pupil classification problems. Yet large districts, because of greater flexibility and leadership, present in general a favorable situation in which adequate school organization may be developed and in which a constructive attitude toward the development of an educational program and its administration may be maintained.

It is the small school district that has produced and perpetuated the indefensible dual standard of education that now generally prevails, wherein rural children are offered educational opportunities far from comparable with those shared by children in town and city. The thousands of small school districts now existing in many states,¹ with their limited resources and small numbers of children, intrench the one-room school, the small graded school, and the small inefficient secondary schools, as well as the many systems in which elementary schools and secondary schools are operated independently of one another. These small schools offer little or no opportunity for an adequate grouping of pupils. As long as public education tolerates these thousands of independent small schools, the problems relating to personnel, to professional leadership, to pupil classification, and to adequate school services will continue to be treated in makeshift fashion. If a sound foundation for building up the educational services offered children in the several

¹ For example, New York State has over 9,000; Illinois over 12,000; and Minnesota, 7,600, school districts.

states is to be made possible, then the reorganization of the school districts in most of our states is in order.

IV. SCHOOL PLANT AND PUPIL CLASSIFICATION

The school housing facilities provided in this country range from the one-room school to buildings accommodating more than 5,000 pupils. However, the problems of pupil classification that arise from housing conditions are due, not so much to the pupil capacity of the buildings beyond a certain size, as to their inflexibility. In the small school the flexibility of room use is more necessary to facilitate certain kinds of pupil grouping than in the large. The recent trend of segregating special classes of various kinds may not necessitate additional rooms in buildings of large enrollments, but it does raise some serious building problems where enrollments are small. Schoolhouse design for small enrollments will inevitably be expensive if pupil classification there imitates that found in larger units.

In all but the large cities the elementary schools are relatively small, enrolling on the average fewer than 500 pupils, hardly enough to warrant the employment of full-time principals. If these small schools house the kindergarten and the first six grades, there are distinct limits as to what can be done in developing organizations for effective classification of pupils. Most of the city schools now in use were designed for the graded eight-year elementary school and are so inflexible as to be poorly adapted to experimentation in organization. On the other hand, high schools in small cities employing a full-time administrative officer are large enough to give them a distinct advantage in classifying pupils over the small elementary schools in the same community.

V. THE ADMINISTRATIVE UNIT AND CLASSIFICATION

The K6-6 or the K6-3-3 or corresponding units of local school organization will no doubt in time fail to meet school needs, as have school organization patterns in the past. Decreasing birthrate accompanied by excess space in elementary schools, changing educational philosophies, high cost of school buildings for secondary-school purposes, increasing knowledge regarding the processes of learning and growth, the growing demand for organized education for very young children, and changes in pupil classification are all issues that are producing new challenges to the philosophy that underlies the organization units now prevailing in schools. It would be unfortunate if the same mistakes are made when the nursery school is generally estab-

lished as were made when the kindergarten was established. There are large school systems in which the administration is forced to modify the administrative unit plan now in operation because of crowded secondary schoolhouses and inability to raise the necessary funds for new secondary school buildings.¹

The situation indicated by the facts on failure in the primary grades is no doubt one that will need careful attention. The movements under way that are slowly eliminating the kindergarten as a separate unit, adding the nursery school, and struggling with a new division in the school may ultimately emerge in the form of a school of childhood. Much study and experimentation must accompany such a movement. Should all the years of school work ranging from the fourth grade down to include all young children for which the public is willing to provide free schooling be housed in one administrative unit? At what age should children be admitted to school? How could modern educational theory be carried out in such a school? Would such a school give more opportunity for coöperation between teachers and mothers in caring for the child? Such a development may disrupt the 'K-6' elementary school, may help to solve the building problem (such schools, enrolling not more than 150 children, could be housed very economically), and may produce a school environment that will differ from the old classroom-teacher unit type. Experimentation in the organization of schools for the education of young children may evolve new approaches to the solution of classification problems and in turn may produce a new type of school organization to take care of children ranging from grade five through grade nine.

VI. PERSONNEL AND PUPIL CLASSIFICATION

It may seem trite to discuss at this point a phase of the problem well known to the profession; that is, the significance of personnel in its relationship to pupil classification. There are, however, aspects of this problem that deserve consideration. Reorganizations of schools that have produced departmentalization or that have resulted in the introduction of new services have brought many new professional positions into the schools and have considerably changed the status of teachers.

The graded school and the subject type of curriculum have produced

¹ An example is Rochester, N. Y., where the seventh grade has been placed in the elementary school and the former junior high schools given advanced grades.

teacher-classroom units in which the status of teachers is very different. In one school a teacher may be held responsible for all the child's activity. In another school one teacher may be a generalist in so far as the fundamental subjects are concerned and other teachers be responsible for the special work in music, art, physical education, and penmanship. A third type of school may be found in which each period of instruction received by a pupil is under the direction of a different teacher. These various plans of pupil grouping and teacher assignment may affect pupil learning and growth materially.

Theoretically all these classroom situations rest upon the assumption that equal educational opportunity is provided for all children. It is also assumed that a year spent in school under these varying types of organization would produce comparable results in pupil development. There are discussions in our educational literature that try to show that one form of organization is superior to the others, but there is little scientific evidence to prove that the contentions are sound.

To classes or to pupil groups irrespective of plan of organization are assigned teachers with varying professional qualifications, experience, and success, and it is taken for granted that in a given school system children of a given grade may be expected to enjoy equal educational opportunities from a chance selection or assignment of these teachers. It has been assumed that limitations or variations in the work of the classrooms would be corrected through the supervisory organization set up. Many school systems will have employed teachers rated A, B, C, on a scale of competence, with 'A' teachers receiving twice the salary paid to the 'C' teachers; yet the teaching responsibilities are the same and the children in the classes are expected to share equally in the services of the schools.

Study of school organization in relationship to better instructional services leads one to believe that the prevalent concepts of the teacher and her position in relationship to pupil groups must undergo a radical change. It is futile to hope that by in-service training or by salary inducements a superior teacher will eventually be available for every classroom. The only hope for making high caliber teacher leadership available for all pupil groups within a school designed for the most satisfactory child growth will be through a reorganization in which the position of teacher will be raised to a more significant professional level. In this reorganization there probably will be fewer professional employees designated as teachers and possibly an increasing number of assisting technicians and teacher clerks.

VII. ORGANIZATION WITHIN ELEMENTARY SCHOOLS AND PUPIL CLASSIFICATION

The internal organization of the elementary schools has undergone many changes during its development, and, as we have implied, we may anticipate further change before this administrative unit will adequately serve as a basis for an ideal plan of pupil classification.

Grade groups in elementary schools comprise children of a wide range of ability and of achievement and frequently of chronological age. It is difficult indeed to define a grade if the definition were to be based on typical practices found in elementary schools. In many school systems emphasis has been placed on practices that have resulted in eliminating overage in schools, and grade groups include children of approximately like chronological age yet with noticeable differences in ability. Hence the term 'grade' has lost its conventional meaning.

The work of specialists with elementary pupils indicates the wide variety of pupil needs and the necessity for segregating certain groups for special attention. This work, together with the changing concept of a grade, is producing problems of pupil classification that are becoming more and more complex.

The movement of creating separate schools and classes for atypical children, which had its beginning in 1900, has become a very significant administrative device for the classification of pupils, particularly as it is applied to the mentally slow, the physically handicapped, and the extreme behavior cases. There are also recent movements that aim toward the segregation of superior children. These various movements have resulted in special schools for the blind, mute, crippled, truants, and other non-typical children.

More recently attention has been called to the classification of children not in the special groups. These pupils differ widely from one another and ability grouping has been suggested as one means of meeting their instructional needs. Wider use of this plan will often reduce the number requiring attention in special classes.

VIII. ORGANIZATION OF SECONDARY EDUCATION AND PUPIL CLASSIFICATION

The organization of the secondary-education program is growing more intricate because the range in the services offered has been extended rapidly and the student body has increased. The organization of

instructional and other school services on the secondary-school level has been the dominant determinant of classification practices. For example, the commercial curricula when first introduced into secondary schools served as a classification device for taking care of those who failed or who were judged unfit for the older curricula.

Pupil classification in secondary schools is closely interrelated with every aspect of secondary-school administration. Classification for homeroom purposes, for activity periods, for extracurricular activities, for regular instruction, for counseling and guidance are not to be solved independently; they will all depend to some degree on the educational philosophy underlying the work of the school, the interpretation of the function of the teacher in the school, and the relationship that should exist between pupils and teacher, and between pupils and the services provided in the schools.

The recent phenomenal growth of secondary schools has been assumed to come primarily from families of lower social and economic levels with lower general ability. While this is probably true in general, there is some evidence that the statement does not apply to every high school. There are secondary schools that have had marked increases in enrollments during the past few years without appreciable change in the intelligence of the student population or even with an increase in it. This statement could also be made with respect to their social and economic levels.¹ We are forced, therefore, to think more and more of the educational needs of varied groups.

The greatest care must be exercised in applying to schools of to-day generalizations formulated on facts secured two or three decades ago. Decrease in birthrate and restriction of immigration are affecting elementary-school enrollments and will soon be reflected in the secondary schools. Whether these factors are producing a different caliber of school child in different areas and whether new pupil-classification problems are being created thereby, continued research alone can indicate.

¹ W. W. Coxe. *Levels and Ranges of Ability in New York State High Schools*. University of the State of New York Press, 1932.

F. P. Roussel. "A Comparative Study of the Mental Ability in Grades Seven Through Twelve in Three Minnesota Towns in 1920 and in 1934." Unpublished Thesis, University of Minnesota Library, 1935.

A. B. Schultz. "Pertinent Facts Concerning the Student Population in North High School, Minneapolis, Minnesota." Thesis in preparation.

IX. NEED FOR EXTENSIVE EXPERIMENTATION IN SOLVING PUPIL-CLASSIFICATION PROBLEMS

Our brief treatment of several significant aspects of public-school administration as they relate to the grouping of pupils for various educational purposes doubtless raises no issues that are unfamiliar to leaders in education. The purpose of the presentation is to stimulate awareness of a fundamental consideration, namely: that the problems of pupil classification are inextricably woven into the fabric that constitutes the organization created for carrying on the educational program. School officials need again and again to be halted in their discussion of educational problems and made to realize that changes in one phase of school organization must be related to the whole organization if smoothness, effectiveness, economy, and continuity are to prevail.

Increasingly, the problem of pupil classification must be attacked through carefully planned experimentation. Too frequently in the past new techniques and practices have been advocated, propagandized, and adopted without adequate trial of their efficacy. New schemes have been adopted and have been followed until they become old schemes without any effort to prove their worthwhileness. If satisfactory solutions of classification practices are to be established on sound foundations, changes in current practices should be looked upon as experimental and accepted as standard only after searching tests have demonstrated their worth.

CHAPTER III

SOCIAL CHANGE AND ITS EFFECT ON SCHOOL ORGANIZATION IN THE UNITED STATES

EDWARD H. REISNER
Professor of Education, Teachers College
Columbia University, New York City

I. INTRODUCTION

The problem at issue may be expressed as follows: Has the organization of schools in the United States proceeded in the direction of more homogeneous grouping of school children for purposes of instruction, or has the opposite been the case? And, in either event, in what ways have changes in American society contributed to the educational development in question?

The investigation obviously involves the entire range of the public-school offerings, which will be considered as including the twelve grades of the elementary and high schools, together with special services, such as the kindergarten and vocational schools that supplement the ordinary program of instruction.

II. PUPIL CLASSIFICATION IN EARLY FORMS OF SCHOOL ORGANIZATION

At present the elementary school and the high school are closely interrelated; they have, indeed, fused into a single, unified twelve-year program of public education. In early American history this was not, however, the case, nor is it true in European countries to-day. The secondary school of the Colonial Period was a Latin grammar school with a definite college-preparatory aim. It had been reproduced on American soil to imitate as closely as possible the Latin grammar school of England, which was simply one form of the typical humanistic secondary school that emerged in the sixteenth century in Northern Europe. This school received boys who had already learned to read and write and immediately put them to learning Latin. The knowledge to be gained and the skills to be mastered were definitely recognized, and the entire curriculum, covering from six to nine years, was laid out with reference to the growing powers of the learner and the

final objectives to be attained. The Colonial Latin grammar school was a graded school.

While it is true that the academy, which became the typical secondary school in the United States after 1800, offered a broader curriculum than had the Latin grammar school and was less rigidly organized, one may say that it organized its classes and grouped its students on the basis of progress and ability to do the work of a given grade, in the same way as the Latin school that it largely superseded. When the public high school was developed in the third and fourth decades of the nineteenth century, it appeared from the very first with a definite program of studies set forth in terms of what was to be accomplished year by year. With a single objective and a single curriculum for all pupils, the graded system proved an appropriate method of classification.

When we turn to the common, or English, school of Colonial times, we see a decidedly different picture. There, all was 'heterogeneity.' The purpose of this type of school was to teach children to read, write, and cipher. The teaching began with the rudiments, but it had no definable end-point. It did not connect with any higher grade of education. Some children transferred from the common school to the Latin school or the academy after they had mastered the rudiments; otherwise they attended as they could or would and quit when they wished to or had to. By common report, instruction in the 'district' school was on an individual basis. Such unity as the program possessed, it gained through the very general use after 1700 of *The New England Primer* as the spelling and reading book, but even that famous work exhibits a range of content from the ABC's to the metaphysics of the *Westminster Shorter Catechism*. Generally the school work of the pupil consisted of individual study of such book or books as he possessed, which frequently were different from those studied by any other pupil in the room, together with the performance of such tasks in writing or ciphering as were set for him by the teacher. The individual attention he received from the teacher was the quotient of the length of the school day divided by the total number of pupils and corrected by subtraction in inverse proportion to the age of the learner. The traditional district school, the régime of which needs no further elaboration here, represented an extreme form of 'heterogeneous grouping.'

The district school was a rural institution, conditioned by the sparse population, the slender financial resources, the agrarian pursuits, and the primitive cultivation of the community it served. It is being dis-

placed gradually by much more efficient forms of school service, as the United States has become progressively industrialized and urbanized. The transition from the ungraded district school to more efficient forms of school organization has been a slow process; it has exhibited considerable lag, has been extremely uneven in its operation and development, and consequently has developed a great variety of patterns. In brief, the story of progress toward better classification of pupils and richer offerings of school experience follows the lines of increasing population density, larger financial resources, better forms of local school administration, more adequate state leadership, and advancing demands of industrial and commercial life.

During the first three decades of the nineteenth century the needs of neglected city children called out the philanthropic impulses of the more well-to-do citizens and resulted in the establishment in many communities of free schools on the basis of monitorial instruction. This system of teaching depended upon the careful gradation of school experience and the use of children as teachers for its success in giving instruction to large numbers at very low cost. The monitorial system was an influential factor in introducing a measure of order and system into the common school. In many districts, however, the monitorial system never was in operation, and there a different pattern, perhaps it would be truer to say many different patterns, of development can be observed.

The first tendency in districts that had increased in population to the point where more school places were needed was to multiply the ungraded district schools. In time the advantages of some degree of segregation and classification were seen and the total number of pupils came to be divided on the basis of age and attainments or of sex. As financial resources increased and as pupils multiplied, new and more advanced studies were provided in the public schools. A more complicated and prosperous industrial and commercial life demanded better educated youth to do its work, while, at the same time, the parents who were paying taxes for schools saw in the provision of greater educational advantages the key to economic and social success for their offspring. Thus, a number of factors contributed to bring about some kind of classification of pupils in the elementary schools. The forms of this new organization of education varied greatly in different communities, but the net result was an evolution that in most cities and many towns culminated before the Civil War in an educational ladder extending from the primary through the high school.

III. CONTRIBUTIONS OF THE GRADED SYSTEM

The period from 1830 to 1860 saw the leaders of American education, largely influenced by the example of Germany, urging the elimination of the old arrangement whereby one teacher with as many as six grades under her direction taught a district school under city conditions, and urging the advantages of assigning one teacher to a class. At least as late as 1880 the state superintendents of public instruction in various states were bringing home to their constituencies the gospel of school improvement through more careful and complete grading of subject matter and more homogeneous grouping of pupils into grades.

Obviously the graded system exhibited many advantages over the ungraded district school. Only by such means could an expanded curriculum be provided for the greatly increased numbers of children. The graded system held substantial professional promise in the increased opportunity it gave for specialization in the training and self-improvement of teachers. Finally, it represented the necessary foundation for improvements in the quality of the child's school activities and experiences toward which educators began to put forth renewed efforts.

But at the same time, the new graded schools exhibited old weaknesses of instruction in an aggravated form and new difficulties of their own. Most of the instruction before the advent of grading had favored mechanical memorization. In the graded school, with its expanded subject matter, this old fault was continued and became even more serious. Courses of study, graded textbooks, annual stints to be mastered, passing grades, final examinations — all these were parts of the machine into which the grade system had metamorphosed. It is not too much to say that the defects of this school machine represent a large part of the inadequacy of our public schools to-day. From the time of the complete setting up of that machine to the present, progressive educators have labored to substitute for its mechanical operation a more creative learning, freer living, and more vital growing experience for children.

Another weakness of the graded system, which became almost immediately apparent, was the difficulty of securing any grouping of pupils on a basis of annual promotion that would suit both ends and the middle of the range of pupil ability. That problem is with us to-day and is the reason for the preparation of this Yearbook. But it is not a new problem. It was present from the beginning of closely graded city

school systems and has been a constant concern of educational leaders ever since.

As early as 1868, a progressive young superintendent of schools in the city of St. Louis, William T. Harris by name, proposed to break the lock step in the schools by means of a system of quarterly promotions. Other superintendents proposed semi-annual promotions, and that system was widely adapted as a compromise between the long agony of a whole year's maladjustment for certain students and the continuous stir of reassignments at the end of every fifty days of instruction.

IV. PROBLEMS RAISED BY COMPULSORY SCHOOL ATTENDANCE

The twin processes of industrialization and urbanization, which so greatly affected the development of education in the United States between 1830 and 1860, have continued from that time to the present to operate with ever-increasing power in the social life of this country. During the last fifty years certain forms of social control, which have been an outgrowth of urbanization and industrialization, have seen conspicuous development, and some of them have profoundly influenced the conditions of education.

Before 1890 many states had recognized the justice of compulsory attendance laws, but such regulations had affected by no means all the American commonwealths and such regulations as were in existence were faulty and weak. In 1918 the last of the commonwealths passed compulsory attendance legislation, and in the interval between 1890 and the present, existing laws have been improved until they operate with fair effectiveness in getting all the children of school age into the schools in at least the more highly industrialized sections of the country. At the same time, many states were passing new regulations covering the employment of children. The result was that by about 1910 a new problem had come home to the schools. It had been one thing to provide a system of instruction more or less well adapted to the needs of the average pupil when the children who could not profit by that instruction tended to remain away from school or to drop out at the earliest possible moment; it was a different matter to provide a suitable school experience for the entire body of children from ages six to fourteen or sixteen that the strong hand of the law now forced to attend school regularly. The problem was not made any easier by reason of the fact that many of the children in the cities came from immigrant homes in which some language other than English was customarily spoken.

In 1909 appeared *Laggards in Our Schools*, a study of retardation and elimination in city school systems. This study by Dr. Ayres may be taken as representing the appearance of the modern statistical handling of data regarding the school population and as a landmark in the treatment of a certain class of educational problems. Ayres revealed a shocking condition of misfit and inefficiency in the ordinary offerings of our schools and thereby engendered a new concern over the organization of school experience to fit the needs of all the children — bright, average, and dull.

V. INFLUENCE OF THE TESTING MOVEMENT

At the same time that Ayres was applying statistical methods in so revealing a manner, psychologists were perfecting methods of mental measurement that made possible a much more accurate description of what children were learning in the schools and what their ability was to profit by school instruction. The extensive development and wide application of tests and measurements not only revealed the diversity of abilities and achievement in a given school grade but also furnished a means of measuring the results of instruction in many of the school subjects.

VI. EFFORTS TOWARD INDIVIDUALIZED INSTRUCTION

1. Greater Variety of School Offering

The gradually increasing heterogeneity of the school population has been responded to by changes in school organization that have operated in at least two directions. There has been a marked increase in the variety of school offerings to meet the abilities, the interests, and the vocational needs of children for whom the traditional course was badly adapted. Vocational courses in great variety were gradually added, while at the same time variants that eliminated the more abstract material have been supplied as school experience alternative to the general courses during the period of compulsory attendance. This tendency has been most clearly in evidence in the reorganization of high-school curricula, but it has also been exemplified in elementary and junior-high-school curricula designed for pupils who have difficulty with the more traditional school materials.

It is desirable in this connection to point out the great change that occurred during these same years in the general philosophy applied to school experience. The impact of the Froebelian philosophy and pedagogy, and particularly the influence of the biological conception of

mind, with all its implications for the nature of learning and the large place of self-expression and activities in any well-rounded and just conception of a school program, changed the entire atmosphere of the school. Under these psychological and philosophical auspices, a sustained attack has been made upon the mechanical characteristics of the graded system that we have noted. However, it is not within the province of this paper to explore that inviting field.

2. Refinements of the Graded System

The second change in school organization to meet the increased heterogeneity of the school population has been an effort to provide some relief within the individual grades from the condition of misfit and lag that accompanied all efforts to give group instruction to children of widely varying interests and abilities. As early as 1886, Superintendent W. J. Shearer adopted a system of flexible promotion and sectional grading of students in the schools of Elizabeth, New Jersey. A few years later other plans were designed to provide greater individual attention to children or to provide for the more orderly movement of children through the grades. Among these may be named the so-called 'Cambridge Plan,' the 'Pueblo Plan,' and the 'Batavia Plan.' These and other methods were widely publicized and experimented with. However, it does not seem desirable to attempt further description of these devices in this connection as they have become fairly well known to students of American education. A more recent effort to 'break the lock step' is represented in the plans for individual instruction initiated in San Francisco about 1912 by Frederick Burk. A modification of the work of Burk was developed at Winnetka, Illinois, by Superintendent C. W. Washburne, while a somewhat similar system has had wide publicity under the name of the Dalton Plan. These last-named experiments are so well known to all that it is only necessary to recall them at this point as an indication of the contemporary interest in the problem of better individual adjustment of pupils.

VII. THE INTRODUCTION OF HOMOGENEOUS GROUPING

Of all the experiments that have been made to mitigate the difficulties connected with a graded system of schools, probably the most important as well as the most recent has been the use of scientific measurement to classify students into homogeneous groups on the basis of their ability to do school work. This system seems first to have been introduced in a large way in the schools of Detroit, Michigan, under

the leadership of Dr. Charles S. Berry, beginning in 1920. In that year 10,000 children entering the first grade in the Detroit school system were divided on the basis of a group intelligence test into three groups designated as X, Y, and Z. The average or normal children, who represented the middle 60 percent of the children in any grade, were called the 'Y' Group; the superior 20 percent constituted the 'X' Group; and the inferior 20 percent, the 'Z' Group. Differentiated curricula were provided for each group with the aim of securing the best possible school experience for the entire range of interest and ability represented. This system has been extensively followed.

Variants and developments of the XYZ grouping plan, in the form of enriched curricula, special coaches for backward children, indeterminate assignments, and special attention to the study habits of children, have been originated and widely tried in the schools of the United States.

VIII. THE OUTLOOK

It may be that not any one of the methods and plans we have mentioned will secure the full rights of the individual child in a highly graded school system. But one thing is certain: educators are aware of the importance and the difficulty of the problem involved and are actively experimenting to find the solution. It seems hardly less certain, if the historical development of the public school system has been correctly pictured, that the needs of our heterogeneous school population will be met only as we succeed more and more completely in getting the right children together to follow those school experiences that are adapted to their abilities and their economic future. Such has been the line of development from the ungraded district school to the cosmopolitan school system of to-day, and the same social forces that have conditioned the growth of the system continue to operate with accelerated tempo and increased power.

SECTION II

THEORETICAL CONSIDERATIONS INVOLVED
IN PUPIL GROUPING

PREFATORY NOTE

The four chapters in Section II deal with important general principles bearing upon pupil grouping.

In Chapter IV certain philosophical implications of ability grouping are presented by Professor Raup, who has been in close touch with much of the thinking at Teachers College, Columbia University. Other philosophical implications, including the theoretical basis of what is commonly termed 'progressive education,' form a part of Chapter VII by Professors Alberty and Brim. In Chapter V Professor Chapin and Miss Conway have drawn inferences for school grouping from the characteristics of sociological groups. In Chapter VI Professor Turney has discussed grouping from the psychological standpoint and has analyzed theories of intelligence. Because only one of these six contributors was a member of the Committee, there was no opportunity for discussion and little interchange of opinion. In some instances the Committee does not find itself in agreement with the point of view expressed; in other instances, it agrees with the point of view, but disagrees with the implications. The Committee believes that certain educational objectives declared by some of the invited contributors to be incompatible with homogeneous grouping can be as easily, if not more easily, realized under homogeneous as under heterogeneous grouping.

Without attempting to evaluate the different points of view, we may call the reader's attention to certain features of the views presented in this section.

1. Each of the contributors bases his arguments upon the definition of ability grouping that he has set up. The contributor's definition must, therefore, be kept in mind when following his argument. Attention is called particularly to the definitions offered by Professors Raup, Turney, and Alberty and Brim.

2. In Professor Turney's chapter, and later in the Yearbook in Chapters XI, XII, and XIII, there is definite recognition of a number of kinds of grouping, of which ability grouping is but one kind. These should be read in the light of Professor Chapin's and Miss Conway's

statement that in our social structure membership in groups is fluid and of Professor Raup's statement that uniformities in human relations are not important enough to justify any one type of grouping.

3. Two of the contributors — Raup and Turney — have presented interpretations of the organismic theory. Note that according to one interpretation ability grouping is found untenable; according to the other it is found highly desirable.

4. The degree of importance assigned to subject-matter mastery seems to determine the point of view held with regard to ability grouping. Professor Raup and Professors Alberty and Brim, in their emphasis upon 'educating the whole child,' upon 'orienting life in society,' and upon 'quality of child living,' give second place to subject matter. Professor Turney, on the other hand, would give first place to subject matter, though he thinks of it as a vehicle for developing the full capacity of the individual.

5. The fear is expressed that the rigidities found inherent in the present graded system will be continued into a system of ability grouping, and this will mean the continued submergence of the individual. Note that two contrary opinions are expressed with regard to this situation — one that ability grouping will lead to less recognition of individual differences, the other that ability grouping will throw individual differences into sharper relief, and, hence, induce greater attention to them.

6. Another issue centers around the amount of homogeneity that is possible and desirable. It is maintained that complete homogeneity is impossible, and that if it were possible, it would have a deadening effect upon pupils. Contrariwise, it is maintained that complete homogeneity is not aimed for, but only relative homogeneity, and that, therefore, the implications as to the deadening effect of homogeneity are inapplicable.

7. Since the invention of intelligence tests, their uses have gone through several stages of evolution. The authors of these chapters evidently have in mind two different uses of intelligence tests — their use as a basis for prediction and their use as an aid in pupil development. Those who have in mind the first use are opposed to ability grouping; those who have in mind the second use are in favor of ability grouping. For the predictive use of intelligence tests, guidance is settled when grouping is done; for their developmental use, grouping is merely a first rough screening in the solution of the guidance problem.

8. Contrast the approach to grouping presented by Professor Chapin and Miss Conway with that presented by Professor Turney. The

former justifies grouping as a social phenomenon; the latter justifies it as an aid to learning. Does this mean two different kinds of grouping?

9. From the four discussions the reader will perceive some of the difficulties and limitations of ability grouping. Perhaps only certain ends can be realized by its use, and other ends must be realized by other kinds of grouping or by yet other ways. Furthermore, ability grouping may be thought of either as a completely adequate method of attaining the various desirable ends described in these chapters or as only *one step* toward their realization.

W. W. C.

CHAPTER IV

SOME PHILOSOPHICAL ASPECTS OF GROUPING

R. BRUCE RAUP
Professor of Education, Teachers College,
Columbia University, New York City

I. INTRODUCTION

Important philosophical questions arise in connection with at least three points in the current considerations of grouping. These points are: (1) the scientific determination of the bases of grouping, (2) the theory of the social process underlying the practices of grouping, and (3) the beliefs about the kind of society we should have, as implied in the purposes of grouping. In fewer words, grouping becomes a problem for philosophy in the assumptions of its science, of its social psychology, and of its social program.

If the approach to the problems in the three areas noted seems to be assuming always that grouping means ability grouping, this is not by arbitrary choice. The form the question takes is determined by what is actually happening. Grouping is properly a far larger subject than is indicated by current emphasis on ability. But the strong trend to-day toward ability grouping makes the problems raised by that practice the indicated approach to the whole subject.

II. THE SCIENTIFIC BASES OF GROUPING

The spurt of interest in grouping and the direction it has taken have in no small degree been conditioned by the scientific testing of individual differences in capacity and in achievement. The rapid development of testing and measurement has given the profession confidence that it could do something objectively about classifying pupils, while, with the unprecedented increase in the number and variety of pupils, the effort to get scientific bases for grouping has grown apace.

The literature on research in this field has been carefully reviewed both for this volume and for earlier publications.¹ The most signifi-

¹ Henry J. Otto. *Elementary School Organization and Administration* (New York: Appleton-Century, 1934), Chapter V.

cant conclusion from it all to date is how little it has brought of clearly incontestable knowledge. Equally earnest and careful studies on crucial points are contradictory in their findings. For almost every scientific claim made in support of homogeneous grouping, to cite an example, there is an opposed claim made on grounds of research equally painstaking. As yet, our research has fallen far short of providing sound bases for procedure.

The question of the present paper is about the premises upon which this movement is proceeding. In what degree is the thing such research is trying to do reasonably possible? Other chapters in this Yearbook will report on the findings where the research has actually been carried on; that is one way to test whether or not what it is trying to do is possible. Since that way has yielded no conclusive evidence to date, there is another way indicated; namely, to ask whether or not we can reasonably expect it to be possible. Are its assumed premises defensible in reason?

What are the chief assumed premises of the test-and-measurement search for bases of grouping? They are (1) that there exist in human behavior in school situations, uniformities of relation discoverable by the methods of exact science; and (2) that these uniformities are present in sufficient number and importance to justify the current devotion of effort to their pursuit.

1. The Control of Variables

There is an accepted principle in the scientific search for uniform relations; namely, that the possible variables, aside from the one or ones being observed, must be known and held in control. Yet how often can this principle be successfully applied in studying human phenomena? The multiplicity of possible variables, their evasion of control, their frequent obscurity, their own changing character in process of time and in change of circumstance, the dependence of the quality of each upon the pattern of interrelation among them all, and, not least, the creative character of the individual person acting always as an organic and unique unit—these and many more factors that may be operative in any one case are calculated to baffle the ablest and sincerest attempts to control them.

Several factors bearing on control of variables are of special importance here. They represent changes in outlook to-day that affect our conception of method in dealing with human phenomena. One of these is the dependence of the quality of any element in a situation

upon the particular form of emphasis or pattern among the elements in that situation. This phenomenon, long recognized, has been taken up by the *Gestalt* psychologists and made the foundation of a whole superstructure of psychology. Whether or not this superstructure in full be accepted, the phenomenon itself has been brought so effectively to attention as definitely to challenge the central position so long held by the atomistic-mechanistic conception of human behavior.

2. The Organismic Conception

The 'organismic conception,' as it is called, is at basis a significant philosophical outlook. The universe is seen, not as a harmony of constant relations, but as a moving, becoming process in itself, partly and for some purposes constant, partly, and in other perspectives, precarious, uncertain, unpredictable. All in all, each moment presents a unique order of things.

Uniformities that are sought would, in the world so conceived, have to hold true of elements as we pass from one unique whole event to another. But this is where the organismic outlook cuts across the path of much current research. It holds that the patterns in which the elements occur in these unique events are themselves integral units and that their character determines that of the elements within them. This opposes the usual mechanistic view that the elements, each maintaining its integral character, add and combine among themselves to make the character of the whole events in which they occur.

Plainly, if the organismic position is correct, it challenges our confidence in the possibility of finding relations that remain uniform while change goes on in the patterns of the events in which they occur. In just this degree are the supposed uniformities on the basis of which prediction is made for grouping held in question.

Many progressive educators have been reluctant to take up with the current trend in grouping. This is in no little part due to the fact that they have what amounts to an organismic conception of the child. They have seen the personality of the child as a unique, creative agency in the world. Normally, the events in his life — in this next year of school for which he is being predicted — shift and change. To predict his next year on the basis of what he has already achieved in certain detailed matters and against a standard achievement averaged from large numbers of children near his age is a precarious undertaking.

3. The Use of Standards

The standard employed is an average of achievement in abstracted, detailed relations. If the *whole* patterns of future events could be controlled and held constant, these detailed bases of prediction might be more convincing. But about our surest knowledge is that these events and their patterns will not remain constant. Averages, standards, and norms in the human relationships within the educational process do provide some basis of predictability, provided the conditions of the occurrence of the phenomena in question are assumed to be constant. But since this constancy does not normally obtain, especially in the modern age, the alternatives are either to give up the standard as a basis for prediction or to force the situation in an attempt to hold the conditions abnormally constant. The latter is a subtle temptation and more prevalent in practice than is healthy.

The use of relation to standards as a basis for prediction and grouping risks the practically unavoidable result of entrenching and enforcing the very rigidities that have caused progressive educators to rebel against prevailing practice. These rigidities are inimical to the organismic process. The dynamic personality of the child cannot be at its best within their narrow confines.

4. Relation of Organism and Environment

Another change in outlook that makes one skeptical about controlling important variables pertains to the relation of the organism and its environment. The two are coming more and more to be viewed as integral in their relations. The organism would not only be non-existent independently of environment, but properly organism should be *unthinkable* independently of environment. This cuts across our usual way of considering the organism a discrete entity. It throws a new sort of emphasis upon environment in the study of educational behavior.

From the point of view of the integral relation of organism and environment, any uniformity sought must be seen as a trait of the interaction of the two, not merely as a trait of the individual; it is a trait of events that involve whole situations. These situations focus in the individual, but he is a part of them, not separate from them. The uniformity must therefore involve the environment. A very static culture, for instance, would allow for more uniformly recurring relations than a rapidly changing one. The habits, customs, and expectations of a static people stay sufficiently the same from year to year to remain in relatively constant patterns of interaction for any individual. In the

more dynamic culture, the factor of changing circumstance must mean that patterns of interaction are less predictable.

Many a child, for instance, starts the year of school from a home which has two parents and is at least outwardly normal. Before the end of the year his home may be broken by one or more of a hundred possible events. Or another child may have come into that home, seriously, for him, reshaping the pattern of affections there. Again the father may have become unemployed, lowering the standard of living in the home, redistributing the efforts and the influences of all the members of the family. Thus changes in surroundings over which the child has no control work inevitably to recast the patterns of his interactions. Such developments are more apt to be the rule to-day than the exception.

Add to the out-of-school environment the subtle personal relations between teacher and pupil and between pupils in the schools, and it becomes obvious that the conditions within which any child's interactions take form and character exhibit variations to baffle the most painstaking effort at prediction. Any parent or teacher who lives close to the school child knows how powerful and often how all-important these inter-person relations are. The morale of the child and his actual achievements are involved in such connections and are bound to go up or down with them or to swing to extremes of compensation when these relationships fail him.

In the long run, any uniformity discovered in human behavior must assume some corresponding uniformity in the environment in which that behavior takes form. This must be the case, for instance, when estimates are made of the constancy of the intelligence quotient. Claims formerly made here have now been much modified, but there remains still a remarkable persistence for the individual in levels of difficulty of achievement according to the intelligence tests. In fact, this phenomenon has had much to do with the promotion of ability grouping and may well, therefore, be considered further.

The fallacy of judging the individual's place in groups by his average achievement on the intelligence test has been forcefully exhibited.¹

¹ Alice V. Keliher. *A Critical Study of Homogeneous Grouping with a Critique of Measurement as the Basis for Classification* (New York: 1931, Teachers College, Columbia University, Contributions to Education, No. 452).

M. Y. Burr. *A Study of Homogeneous Grouping in Terms of Individual Variations and the Teaching Problems* (New York: 1931, Teachers College, Columbia University, Contributions to Education, No. 457).

J. R. McGaughy. "Homogeneous grouping of pupils." *Childhood Education*, 6:1930, 291-296.

cisions or of policies. Cold precision in the quest of fact, endlessly valuable as it is, is still abstracted and contributory, not primary in the race's task of being intelligent. The primary process is in the scene of conflicting, competing values; that is, in the crucible where the designs for living are wrought out.

It helps to see the nature of deliberation if we ask how excellence is achieved in it. In physical science we find excellence closely associated with being objective. While a very similar principle prevails for deliberation, it is more fruitful to think of excellence in this as associated with being dispassionate. This admits the play of values and gives weight to feeling, interest, and preference. Dispassionate thought is not without passion, but rather with such control among passions that no one of them overmuch obscures the relation of act and consequence, and none, excluding due weight to others, overdominates choices and decisions.

Deliberative thought, therefore, when well carried on, is sensitive to every pertinent human preference. This indicates unmistakably that its function can be fulfilled only in close connection with a vital social medium. Only in a stimulated social setting can it build the sensitivities necessary to its advance.

In relation to this primary deliberative function in society, what is the nature of our curriculum subjects? Usually they are academic abstractions and constantly in peril of forgetting the need in the heart of the social process from which they have drawn apart for perspective and reflection. They go off independently, neglecting the fact that their normal fruits can be realized only upon reabsorption into the primary process itself. It is because of just such diversion of intelligent effort from its proper social medium that we make so much use to-day of standards of subject-matter achievement in sorting out pupils into groups. Had this unnatural separation never taken place, our notions of education and our corresponding problems of grouping would have been of a different order.

In this perspective, again, how would the educator concern himself with individual differences? He would seek to know individuals and their talents primarily in relation to this central function of social deliberation. Their differences would be of concern to him in terms of the needs and possibilities of that function. The traits he would cherish for them would be not those primarily of social abstraction and isolation, but rather those that reflect sensitiveness to human values and wisdom in the making of choices. Other differences would be im-

portant, but if deliberation is the heart of intelligence, such other differences would be always secondary.

When we stress individual differences so strongly to-day as a basis for grouping, it is these secondary differences that are receiving almost exclusive attention. These are the differences manifested in isolation from the movement of social deliberation, with its conditions of human sensitiveness and demands for wisdom.

The bearing of these considerations upon the problem of grouping may now be more clearly seen. Current practices in grouping, as noted in the beginning, have gone hand in hand with subject-matter education and the prevailing notion of individual differences. If these truants from the primary process of social intelligence were brought back into their normal medium, what would happen to our grouping? First, it would find its standards, not primarily in the subjects but in the factors that more appropriately condition the success of intelligence operating deliberatively in society. Secondly, it is difficult to see how emphasis upon differences, in terms of this primary function of intelligence, could lead to segregation of levels of ability in groups. Such practice would tend to take persons out of the normal setting in which the proper conditions for growing in deliberative ability are found.

IV. GROUPING AND THE SOCIAL PROGRAM

Does what one prefers in the way of grouping depend upon what one wants for society? One of the objections to ability grouping is that it makes for harmful social attitudes, even for class distinctions. The persistence of such claims makes them an indicated cue to the consideration of practices of grouping in relation to philosophies of social direction.

Let us consider this problem around the following questions: (1) Does making the study of grouping into a science avoid the necessity of considering such science in relation to a social outlook? (2) What social philosophies are implied in current practices of grouping?

1. Relation of Science to Social Outlook

A recent writer¹ has shown how the pursuit of science fares in a land (Germany) where economic conditions operate to reject or restrict its application. The claim that science can be free from the so-

¹ Frederick Soddy (ed.). *The Frustration of Science* (New York: W. W. Norton & Co., 1935). Ch. VII by P. M. S. Blackett.

cial purposes of the particular group in power in a country is, to this author, not borne out by the experience of the peoples in the western world.

Those who claim that science can be aloof are usually thinking of what is often called 'pure' science — but a clear distinction between what is called pure and applied science is impossible to draw, and though some of the more abstract branches of a science may be sometimes temporarily immune from political matters, such immunity is very superficial. No science, however abstract, has immunity today in Germany from the political environment, nor in Russia, nor anywhere else. . . . Science, on the scale on which it is produced today, is an integral part of the social organization of the country.

The scientists are concerned with "the struggle between rich and poor, between property owners and the working classes. . . . I believe, that it is not at all irrelevant to science, but on the contrary of enormous importance, which of the two, the worker or the owner, dominates the State."

The case for 'pure' scientific study and research, particularly in human relations, has been badly shaken if not completely discredited. The importance of knowing what are the social philosophies of scientists working painstakingly in any field to-day is becoming more and more obvious. Sooner or later, in the problems they study, in the methods they employ, in the evidence they admit, in the conclusions they seek, or in the hypotheses they honor and pursue, what they want for society gets in its influence. Dispassionate efforts to make accurate observations of relationships and the employment of the methods of rigor that the race has evolved are not thereby discredited. Rather is it important that the worker in these lines expect that equal rigor shall be practiced in those methods of thought that carry on the reconstruction of his social purposes. It is the separation of the two, not the practice of the one, that causes the difficulty.

We should not expect research on grouping to be free from the social preferences of those working at it. But what we may reasonably insist upon is that the efforts at such research be made in clear consciousness of the larger social orientation that they do, at least tentatively, sanction. Can we discover to-day what social philosophies are implicit in the several emphases in grouping? This was our second question.

2. Social Philosophy of Grouping

What, for instance, has been the relation between our interest in ability grouping and the type of competitive individualism that has marked American life? Our individualism has, of course, influenced practically all our educational efforts. We should expect it to be present also in our ways of grouping. But in these latter practices the relation becomes more acute. For here we see coming together several lines of development, all of which have tended to foster such individualism. The marking system that has set the pupils in competition with their fellows rather than in pursuit of their own possibilities, the goal of success interpreted to mean aggrandizement for the individual rather than advancement of the group welfare, competitive achievement in subjects, locating the standards of differentiation among pupils in these unnatural, abstracted and relatively static elements in the culture rather than in the vital needs of the social process — these are prominent among the procedures that have been merged and made conspicuous in grouping, especially as the latter has reflected our absorption in individual differences.

The emergence of ability grouping following upon these several lines of development is very significant. Is it not the natural outcome of our competitive individualism to-day that it should become competitive group life, as interdependence exerts its increasing demands? This is precisely what we have in industrial relations. The schools, here as elsewhere, have run closely parallel to industrial organization.

Does not the parallel run farther? Will the high ability group become the owners and employers and their favorites? Will labor recruit its forces mainly from the lower groups? This is not a fiction. School ranking in this and in other countries has a high relation to economic opportunity. But, someone asks: Is this not precisely as it should be? The answer is simple: Yes, if that is the kind of economic arrangements and control you want for society. No, if you prefer an economic system of another kind. Is it a defensible doctrine that those who have the 'brains' shall both own and control the wealth? Some believe so. For them our type of ability grouping is congenial. Others, believing otherwise, hold our grouping under suspicion.

But, it is reasonably asked, does our grouping really reflect these economic differences? Would not another kind of economic order, more collective in purpose, still honor the same kind of grouping?

There is, in the answer to this question, an assumption that a truly socialized economy cannot be had eventually without democratic control. In the earlier paragraphs on the nature of the social process the writer set forth what to him seems the only conception of that process that is consistent with a philosophy of democratic control. If our economic system were ordered according to the principle of deliberative social intelligence there presented, it is highly doubtful that it could continue the present discrimination between worker and owner. It would utilize all differences of talent, but for the integrity of the whole system, not as bases of vicious division between groups. Such an economic philosophy would hold the same reasons against ability grouping as were presented in the foregoing discussion of the deliberative social process.

From this connection we may well go on to consider one of the most frequent claims about ability grouping; namely, that it is promoted in some large measure for the purpose of smoothing out the administrative working of the school system. Other things being equal, there could be no objection to this. Our interest here, however, is in the degree to which other things are equal. Smoothly working administrative machinery is peculiarly adapted to the production of *things*. Where, on the other hand, the product consists of somewhat self-determining personalities of a thousand different varieties and the process is properly the kind of on-moving social understanding and intelligence described in our earlier pages, the type of order in the system is not the same as that which prevails in a more impersonal industry. There must be large latitude for individual development, criticism, and positive participation in determining the types of product sought and the ways of achieving them. But this is another way of saying that the controls in the educative process should be democratic.

When our conception of administration in education parallels that of industry, we may with reason expect that the social philosophy implied in such practices is also common to the two lines of activity. The control of industry has not been democratic. It has severely limited the participation of labor in the determination of its policies. It works more as an army than as a system congenial to democracy.

In the degree that grouping is fostered by motives of this character, it cannot be expected to take forms readily appropriate to education for democratic living.

V. SUMMARY AND CONCLUSION

The most usual objection to ability grouping is that it is not democratic. From the foregoing considerations it seems that the practice does throw the weight of its influence mainly against democratic procedure. Not by deliberate intention is this done, but by reason of the underlying identification of the movement with several lines of assumption that in American society are making against democracy. One of these we have seen to be the pursuit of an authority supposed to inhere in the uniform relations discernible by science, upon the basis of which to predict and to plan. We found much reason to conclude that this type of authority in human relations does not exist in sufficient degree to sustain the hope.

A second such line of assumption is that which unnaturally separates the individual on the one hand, and the consciously selected and organized culture on the other, from the total social process of which they are both parts and in which alone they find their true meaning. Here, particularly, we saw how the fuller realization of public intelligence requires that the two isolated extremes be avoided; we saw that we find our sense of social security not in the possession of a traditional body of abstract and compartmentalized intellectual materials, but rather in the common understandings that are the eventual dispassionate products of deliberation into which the values and preferences of the whole public increasingly shall have entered.

And, third, we have seen that our indifference to the social philosophies implicit in the practices of grouping has worked to let these practices aid and abet social beliefs and procedures that are coming to be considered among the most serious enemies of the social good.

These three lines of development — (1) a quest for bases of authority in uniformities supposed to exist in human relations, (2) a confusion of social intelligence with the wide acquisition of the highly abstract subject matters in our intellectual tradition, and (3) the unwitting entrenchment, through educational practice, of unwholesome social procedures — have converged in our policy of grouping to make it an agency far from desirably consistent with the purposes of a democratic society.

In these three factors we find, not only the bases for negative criticism of present practices in grouping, but at the same time clues to practices in grouping that would be more congenial to democratic control. Authoritative bases would be found, not mainly in the uni-

formities of exact scientific finding, but in the deliberative judgments of teachers and parents and of children themselves. Those judging would be aware of exact findings of detailed relations, but sensitive mainly to the whole pattern of relations among the persons, facts, and values involved. *They would be wary of the domination of standards and norms and fear nothing so much as arbitrary and fixed classifications in the face of the variable, uncertain, and creative forces that will always make the year that is ahead.*

Its goals of achievement will be not in the abstracted subjects, as such, but rather in terms of common attainments for which the current social process calls. An individual would be judged, not mainly on the basis of success with the subjects, but on the degree to which he had attained competence in filling an appropriate place in the group's common advance toward intelligent and appreciative living. Subjects could be only incidental to this attainment.

And finally, a desirable grouping would foster the kind of social arrangements and control that the educators and the community of the school would like to work for. Those who plan this grouping would open the way for full consideration of the degree to which its influence would count for the extension of democracy, particularly in the economic-social relations of American society.

CHAPTER V

THE SOCIAL GROUP IN EDUCATION

F. STUART CHAPIN, Professor of Sociology
and

MARGARET I. CONWAY, Research Assistant
University of Minnesota, Minneapolis, Minnesota

I. INTRODUCTION

John Dewey's famous declaration that "school is life and not just preparation for life" has so appealed to the imaginations of educational leaders as an epitomized statement of their strivings that it has become one of the best known and most widely accepted principles of educational philosophy. With increasing realization of the ever-widening gap between formal education and the world of actual and potential experience beyond the confines of the school building, educators have sought new methods and materials to supersede traditional educational procedures.

Developments in the psychology of individual differences during the past two decades have suggested a fruitful approach to the problem. Numerous intelligence and achievement tests have been offered by psychologists for the purpose of obtaining quantitative measures of qualities that have long been known to vary among individuals. On the basis of composite scores derived from test data, together with other indices of ability considered of prognostic significance, pupils in a number of schools have been sectioned into 'homogeneous groups' or 'ability groups' as contrasted with the random 'classification' involved in 'heterogeneous grouping.'¹ This procedure has been fol-

¹ Genetically 'homogeneous' and 'ability' grouping may be considered identical, since either may be formed on the basis of intelligence tests or on the basis of composite scores obtained from a series of achievement tests. . . . "The point of differentiation between homogeneous grouping and ability grouping," says Dr. Coxe, "is that the former is looked upon as a device for improved achievement in a certain standardized subject matter, whereas the latter is for the purpose of developing certain more general abilities and that subject matter is used merely as a means to this end." Homogeneous grouping "attempts a finer classification than is afforded by grades" in order to attain maximal achievement in traditional subjects, whereas ability grouping is "an attempt at a new

lowed with the hope that the educational gains accruing therefrom would be substantially greater than those yielded under traditional methods.

Thus far, however, the innovation of 'grouping' on the basis of measured individual differences has not been received with general enthusiasm.

The specific aspect of the school program that would appear to have received only indifferent consideration is the educational process itself. Acceptance of the pronouncement of one psychologist that "if we take care of the individuals, psychologically speaking, the groups will be found to take care of themselves" seems to be reflected in educational theory and practice.¹ The dynamics of collective life, with its temporal and spatial patterns of interstimulation and response, has apparently been overlooked by educational leaders. Since group association in every culture is a prerequisite to the fulfillment of the elemental human needs, it is believed that an understanding of the nature and significance of *the group*, the central concept of sociological theory, will contribute materially to the fruitfulness of efforts to deal with the problems of education. It is the purpose of this chapter, therefore, to define, describe, and explain the nature and processes of groups in general, and to suggest parallels and implications of the group concept, in its current sociological meaning, for educational theory and practice.

II. THE NATURE OF SOCIAL GROUPS

1. The Reality of the Group

The reality of the group as an entity with independent existence has been a highly controverted issue among sociologists, social psychologists, and individual psychologists. According to the sociological point of view, the group is neither a mere classification nor an aggregation; it consists rather of individuals united by specific relations to one another and to the group as a whole. Reciprocal attitudes, habits, and behavior patterns arising from common customs, traditions, and mores unify members of kinship or territorial groups. Common ideals and purposes, such as those to be found in occupational groups and reli-

classification," the purpose of which is "not more efficient teaching of traditional subject matter, but the providing for different needs of different groups through differentiated curricula." See W. W. Coxe, "Our homogeneous-ability grouping confusion." *Jour. Educ. Research*, 25: 1932, 1-5.

¹ F. H. Allport. *Social Psychology*, p. 9.

gious, philanthropic, or recreational associations, are similarly cohesive forces. Through interrelationship and interdependence the segments of individuals' behaviors are combined into a functioning whole, the independent existence of which is revealed in its functioning in a "world of other groups." Wallis puts this clearly:¹

A group is an entity when it shows persistence of qualities and when the parts of which it is composed are mutually interdependent. In such a case it functions as a unity, and so is a reality. . . .

If we started with a microscopic view of a human being, seeing only cells and cell aggregates, it would be exceedingly difficult to discover the interrelations of this huge community of cells and envisage all of them in a functioning unity. . . .

We solve the problem by refusing to recognize it; that is, we start with unity in the human individual. . . . The reason why the concept of a human individual is so easy is that we start with it, not acknowledging the synthesis.

In a Dakota tribe . . . the action of the war party cannot be understood apart from the traditions of the tribe, is incomprehensible apart from the opinions entertained by contemporaries. Change in any portion of group life is apt to affect all other portions; no group activity is carried on independently of other group activities. In a word, group activity can be understood only by studying group activity, for we are dealing here with a self-sufficient social reality.

That group behavior can be understood in terms of individual psychology, Wallis denies. The behavior of the group—a "self-sufficing reality"—can be understood, he contends, only when the component individuals are excluded from the problem. He insists that

the student of group activities can disregard individuals, can predict the behavior of the group without acquaintance with the respective individuals. . . . We need to know only their social attributes, their place in the group, and then we can disregard their individual attributes.

in much the same way that an individual psychologist can omit reference to specific facts of the body in his analyses of mental processes. The group, that is to say, is something more than the sum of its parts. It is primary to the parts and fundamental to them. It represents a configuration with properties that cannot be explained in terms of elements juxtaposed in time or space alone.

¹ W. D. Wallis. "The independence of social psychology." *Jour. Abn. Psy.*, 20: 1925-26, pp. 147-149.

Allport, representing the point of view of individual psychology, denies the validity of interpreting social facts in terms of the group or social process. Group phenomena, he says, must be explained in terms of the innate or acquired characteristics of the members of the group.¹ Citing various forms of the "group fallacy," he contends that in every instance "we are led back to the individual as the locus of all that we may call 'mind.'" His argument follows:¹

Alike in crowd excitements, collective uniformities, and organized groups, the only psychological elements discoverable are in the behavior and consciousness of the specific persons involved. All theories which partake of the 'group fallacy' have the unfortunate consequence of diverting attention from the true locus of cause and effect, namely, the behavior mechanism of the individual. They place the group prior to this mechanism in order of study, and substitute description of social effects in place of true explanation.

In defense of the sociological point of view, however, it must be explained that a superindividual or superorganic 'mind' has no part in the theory of the group as an entity with independent existence; that is to say, the attributes of a group, apart from the individuals of which it is composed, are functions of the interrelations and interdependence existing within it. In his insistence that social phenomena must be explained in psychological terms, Allport has made a significant contribution to our understanding of groups and group processes.² That groups cannot be completely understood if the existence of the individual is denied, we concede; but we also insist that the obverse of this statement is equally valid; namely, individual behavior cannot be interpreted without reference to social and cultural phenomena. In dealing with social facts, therefore, both approaches are admissible, and either may be used according to the main consideration of the problem and the purpose of the investigation.

A peculiar interrelationship exists between the whole individual, the data of individual psychology, and the group, the major category of sociology. The individual personality consists of a hierarchy of persons, or selves, each of which represents an aspect of his personality developed in a given group association and integrated into the total pattern of behavior. The group, on the other hand, consists of parts of personalities knit together into a pattern of collective behavior. A man may, for example, function in a family, a profession, a church, a

¹ F. Allport. *Social Psychology*, p. 9.

² *Ibid.*, pp. 1-9.

golf club, and other social groups, each of which contributes to the total organization and integration of his personality. Within the family group of which he is a member, however, only a segment of his personality — and of those of the other members — is comprised in the social whole.¹ Groups are organized wholes in which each member has status. Thus, membership in an economic organization may, for a host of individuals, range from the lowly position of a factory hand or errand boy to chairman of the board of directors, yet all represent inter-related and interdependent parts of a functioning whole, or entity, that is known to the world by its corporate name. Other parts of the personalities of the individuals involved may cohere to form a multiplicity of additional group patterns ranging from the closely knit family and neighborhood groups to those in which relationship is so impersonal that the individual members are unacquainted with one another.

2. Classification of Groups

Among the numerous classifications of groups that have been suggested as sociologically significant, the most useful to the present purpose is that of Cooley. On the basis of varying degrees of intimacy he differentiates between primary, or face-to-face, groups on the one hand, and secondary groups, or associations in which personal contacts are largely indirect, on the other. In the following paragraph Cooley has described his well-known concept of 'primary group';²

By primary groups I mean those characterized by face-to-face association and coöperation. They are primary in several senses but chiefly in that they are fundamental in forming the nature and ideals of the individual. The result of intimate association, psychologically, is a certain fusion of individualities into a common whole, so that one's very self, for many purposes at least, is the common life and purpose of the group. Perhaps the simplest way of describing this wholeness is by saying that it is a 'we'; it involves the sort of sympathy and mutual identification for which 'we' is the natural expression. One lives in the feeling of the whole and finds the chief aims of his will in that feeling.

The secondary group, as suggested above, is one in which contact is for the most part both indirect and impersonal. In groups of this

¹ F. S. Chapin. *Contemporary American Institutions*, pp. 17-23, 43-47, 90-91, 220-222, 325-331, 339-340.

F. H. Allport. "The nature of institutions." *Social Forces*, 6: 1927, 167-179.

² C. H. Cooley. *Social Organization*, p. 23.

type interaction is often based upon a single common interest. Each local religious, economic, or political group is affiliated with a world organization and through its regional, national, and international relations is in indirect contact with all countries and regions in which a branch of that organization has been established.

A wide discrepancy exists between the respective contributions of primary and secondary group association to the integration of the personality. Primary groups, such as the family, the neighborhood and its informal gatherings, and the play group, in which relations are intimate and personal, include a relatively larger part of each member's personality, and, hence, promote character integration. But in secondary groups, the satisfactions to be derived from participation in face-to-face contacts are wanting. The secondary group, therefore, includes a relatively small part of the individual's personality. If the major part of his associative life is restricted to such impersonal and relatively infrequent contacts as those comprehended under this category, it follows that character integration may be prevented.¹

But primary and secondary groups do not cover the entire range of association, in terms of degree of intimacy, common to the experience of the majority of people. In a host of groups acquaintance is still direct and personal, yet contact is so infrequent or so formal that it can scarcely be included within the category of primary association. The *intermediate group*² has been suggested as a needed concept to bridge the gap between primary and secondary groups, and would include such groups as school classes, board or committee meetings, and religious associations.

Bernard's concept of *derivative group* (secondary group), as contrasted with the secondary group described above in terms of intimacy, is based upon the mode of origin of groups. Primary and derivative groups are the categories designated in his twofold classification, the latter representing any group form 'derived' from the primary group.³ Since the relative importance of the primary group in social organization has been diminishing, the implications are clear that we are faced with the necessity of developing techniques for extending primary ideals and relationships to the derivative groups by which it is being

¹ F. S. Chapin. *Op. cit.*, pp. 158-168, 303-306.

² Cooley, Angell, and Carr. *Introductory Sociology*, 1933, Ch. XV.

Alvin Good. *Sociology and Education*, 1926, Chs. XI-XI.

W. R. Smith. *Introduction to Educational Sociology*, 1917, Ch. VII.

³ J. Davis, H. E. Barnes, et al. *An Introduction to Sociology*, p. 454.

superseded — if we would facilitate personal integration through socially approved group relationships.

The real social group, it has been explained, exists only when it lives and functions as a unity. In order that a number of individuals may so live and function they must be bound by one or more ties or bonds. Such bonds, or reciprocal attitudes and habits, vary in number and character from one group to another. Since group solidarity varies in direct proportion to the number of bonds and to the degree to which contact takes the form of primary association, it logically follows that group disintegration is a break-up of the bonds that keep the individual members in communication and contact.¹

3. The School as a Group

The school represents one of the major groupings within the community but it differs from other local groups in several respects. In the first place, membership in a community group is voluntary; school enrollment is a matter of compulsion. The members of the community groups, moreover, are drawn together by common purposes and interests, and trade affiliations. The child, on the contrary, does not enter school by virtue of his interest in learning as such, although the school may approximate a voluntary grouping in the first instance to the extent that other members of the primary groups to which the child belongs, including the family and play group, have succeeded in building up positive and forward-looking attitudes during the pre-school period, and to the extent that other members of his play group are also members of the intermediate group. The degree to which that initial interest is maintained, increased, or diminished, however, depends largely upon subsequent experience in the school situation.

Another point of difference between membership in a community group and school attendance lies in the fact that the former affiliation may be discontinued at will if initial interest wanes. In the event that interest in school life either diminishes or completely disappears, however, the school child can accomplish little in the nature of an immediate, direct adjustment, whereas he can drop out of a play group that has failed to fulfill his early expectations. School attendance is enforced by law; consequently there is no recourse in the face of difficulties without involving both parents and school authorities.

The task of the educator is to train the child in the skills and

¹ F. S. Chapin. *Op. cit.*, pp. 90-91, 99-103, 105-106, 333-334.

techniques requisite to adequate social living in a changing world. His success in attaining this objective, however, is conditioned largely by his methods of stimulating the child and maintaining any interest exhibited in school activities. Groupings within the school approximating as closely as possible those of the community suggest a method of attacking this problem of motivation. A heterogeneous aggregation of school children at any grade level, it must be remembered, does not constitute a group in the sociological sense. Interaction and mutual stimulation, based upon common interest as a cohesive force, and expressed in the participation of its members, are the essence of group life; and so long as these continue, the group may be expected to survive. Strictly speaking, any plan for the division of children with reference to a criterion, for purposes of training, is merely classification. If such classifications are arranged on the basis of criteria that are significant to the individuals concerned, however, true group activity may be expected to eventuate. If, on the other hand, the bases of classification are meaningful only to administrators and teachers, such gains can hardly be anticipated.

In the light of the foregoing, the validity of composite scores as a criterion in sectioning may be questioned when such scores are measures of widely differing traits or abilities. Since group relations are formed on the basis of bonds originating in the significant common experiences of the individuals concerned, and since composite scores including a variety of mental and achievement tests and other miscellaneous data yield averages of doubtful significance, it naturally follows that the failure of true groups to emerge from classifications so derived is not surprising.

III. THE EXTERNAL BEHAVIOR OF GROUPS

Groups differ in duration as well as in purpose, ranging from the ephemeral crowd attracted by a fire to those satisfying sufficiently constant needs and desires to warrant relatively permanent existence. The permanence of certain major groupings lies in the fact of continuing association, which in turn is attributable largely to the relative importance of the symbolic component.¹ The church, the city government with its functioning boards and commissions, an industrial corporation, a political party, or the United States Senate exemplify the relatively permanent type of association. The greater part of the

¹ *Ibid.*, pp. 99-101, 332-334.

active community life, however, is carried on through interrelated special-interest collectivities, or sub-groupings, within the major divisions of interest.

Each special-interest grouping found within any community includes but a small fraction of its total population. Such units are created and maintained for the purpose of satisfying the specific objectives of their respective members. Fulfillment of the purpose that originally called a group into being, such as a reduction of tax rates, or an ordinance prohibiting the continuance of certain public nuisances, will be followed by disintegration of the group unless a new interest emerges to serve as a unifying core. Long delay and discouragement, or complete failure in the accomplishment of its purpose, may ultimately result in either the disbanding of a group or its absorption into the organization of a more powerful unity, as in the case of third-party political movements in the United States. The stimulating experience of participation in the associative life of a specific active group may lead first to waning interest in old attachments and finally to complete transfer of attention and loyalty to the more significant relationship. Thus, the membership in the functional organizations of community life is extremely fluid, and the life of each grouping relatively short.

The longevity of groups is, in some instances, directly related to factors conditioning individual longevity. Analyses of occupational groupings, or those formed on a socio-economic basis, have yielded impressive evidence in support of the contention that individual longevity varies directly with status.¹ Within the lower socio-economic strata, where population is relatively fluid owing to high birth and death rates, the fact of a more rapidly changing population markedly affects the more permanent groupings. Among the relatively efficient individuals embraced within the higher strata of the socio-economic hierarchy, where birth, death, and morbidity rates are uniformly lower, certain groupings are benefited by the differential rates of population change.

Groups may vary in size from a family of two to an internationally organized secondary, or derivative, group embracing large numbers of

¹ P. A. Sorokin. *Social Mobility*, Chapter XI, "Differences in Vitality and Health of Different Social Classes." Sorokin has more recently summarized the data on group longevity in "Life-Span, Age-Composition, and Mortality of Social Organizations." *Mensch En Maatschappij*, 9e Jaargang, No. 1 en 2, Groningen.

individuals irrespective of race, nationality, or status. The activities of many neighborhood and community groups are circumscribed by the boundaries of their respective local areas, but numerous functioning unities are constituents of an organization so complex and far-reaching in its control that the masses are incompetent to envision its totality. A vertically organized corporation, for instance, may be subdivided into successive strata of smaller groupings. Conversely, the various committees, boards, and other sub-groupings within a community may constitute units of the local church, political party, or industrial organization that, in turn, may be incorporated into the larger regional, national, and international organizations.

Certain external factors are associated with the process of weakening or severing the group-making bonds. One of the most important factors in the process eventuating in the disintegration of groups is individual mobility, both horizontal and vertical. The rapid development of the facilities of communication and transportation during the century just ended has made complex social organization possible, but it has also contributed to the disintegration of primary forms of association through increased territorial movement and new modes of functioning. Activities once considered the prerogatives of the family have passed to the community, and those which formerly were carried on by the latter have been taken over by larger governmental and industrial units. Since material needs must be satisfied within the existing economic organization, and since the inseparability of a worker from his work constitutes a peculiarity of labor, it has been necessary for a large portion of the total population to move from one region to another in search of employment. A form of sequential residence, therefore, precludes the possibility of establishing permanent group relations.

Within the social classes representing the opposite extreme of the socio-economic hierarchy a similar situation exists in consequence of possessing several residences located at widely dispersed centers of interest. For these classes also, no locus of continuing participation and loyalty exists. And finally, the middle classes acting under similar impulses, have become habituated to the custom of seeking pleasure and profit beyond the borders of their own communities. Thus, individual mobility has become a habit, with the result that modes of response and patterns of behavior established during a period when settled life and narrow contacts and interests contributed to group solidarity and cohesion, have become inadequate to the requirements of contemporary social life.

Although the aspect of individual mobility that occurs upon the horizontal plane is more apparent, movement up and down the social scale — vertical mobility — is also a phenomenon common to all cultures at all times. The ideal distribution of individuals throughout all phases of the common life would be that in which each individual was so placed that he could function to the full measure of his capacity; that is, he should find himself in a position neither so difficult as to lead to discouragement nor yet so easy that the stimulus of a real challenge is lacking. But a wide discrepancy exists between the ideal arrangement and the actual situation. A multiplicity of obstacles impedes social distribution according to functional ability. In cultures where social forms have become rigid, as in regions where the caste system prevails, movement from one stratum to another is infrequent. In democratic countries, on the other hand, where the velocity of circulation is greater and the 'avenues of ascent and descent' more numerous, the closest approximation of an ideal social distribution may emerge — a circumstance that has tended to create an illusion that natural gifts are equal and that social stratification is non-existent in countries proclaiming the equality of men. But the rate of adjustment between ability and status varies; during periods of economic prosperity and depression the velocity of social circulation may be so increased that some individuals will rise or fall several rungs on the social ladder during a single generation.

In regions where social forms are relatively unchanging, however, redistribution of individuals and classes cannot be accomplished without a major social convulsion. Wars and revolutions, likewise facilitated by the mechanical devices created to extend sensory functioning, have led to widespread upheaval, during which bonds established under former arrangements have been severed. Those dispossessed in consequence of new political alignments, or the economic accompaniments and consequences of war, have been forced to pick up the broken threads and weave a new pattern of life amid new scenes and associations.

The ability to participate satisfactorily in the changing coöperative life of a community is a product of learning. It would therefore seem that the school community, like the larger group of which it is a part, should similarly be subdivided into a number of classes that may become highly fluid, interacting, and interdependent groups, suited to the varying purposes and interests arising in the school situation. New groups representing new challenges should be expected to appear regu-

larly in order that the actual and potential capacities of each child may be developed. Besides intelligence, qualities necessary to individual success, including persistence, ambition, and the like, are specific rather than general characteristics. They represent functions of interests that change both quantitatively and qualitatively as experience in group life leads to new worlds of reality in history, geography, or art, rather than traits that individuals may be expected to exhibit in every learning situation.

IV. INTERNAL PROCESSES OF GROUPS

The nature and the degree of an individual's participation in the community life is directly related to his own interests. The intensity of his participation may range from mere physical presence at group gatherings to active leadership in the formulation and execution of group policies. The degree to which a person participates in the functional activities of a group, like any other objective social fact, may be measured and stated in quantitative terms.¹

Active participation in the varied phases of approved associative life confers prestige upon the participant and gives him social status within the community. To the versatility and varied interests exhibited by some group members may be attributed their tendency to function as leaders in both major and minor group activities. Many more individuals possess the necessary background of information and experience to assume occasional positions of minor leadership within their various group relationships, but always there is the great mass of actual and potential followers who are never entrusted with key positions in any group, but who by their loyalty to its ideals and standards, and their eager, active participation in its undertakings win for themselves the personal satisfactions that accrue from coöperative activity in socially approved endeavor. The satisfactions so acquired, consisting largely of the friendly interest and esteem reflected in the attitudes of others, are a product of the process of interstimulation and interactivity itself.

Satisfying participation in an optimal number of groups facilitates integration of personality. Varying modes of response win either approval or disapproval in specific situations, and out of the increments of learning that accrue from repeated experience in a variety of social situations character traits are formed. Character traits are segments

¹ F. S. Chapin. *Op. cit.*, 165-167, 348-352, 374; also Long and Smith. *Fields and Methods of Sociology* (ed. by L. L. Bernard, 1934), pp. 500-501.

of behavior sufficiently organized and integrated to constitute general guides to conduct. Character is the pattern that the mores approve, and the individual whose behavior conforms to the expectations of his fellows in all or a majority of situations is said to possess that desirable quality.

One of the most valuable outcomes of the educational process is the ability to get on with one's fellows. Participation in the varied activities of the group gives social status in the school as well as in the community. The measure of a child's participation will depend largely upon his conception of the relative merit of his own abilities, this self-estimate having been acquired through observation of the behavior of others toward him. The nature and degree of individual participation in the common life of the school, however, tends to vary with the homogeneity of the school groupings in terms of a criterion that is of significance to each of the individual members of the several associative units; and within each major group it will approach the maximum in proportion as the members are neither discouraged by the superiority of a preponderance of their classmates nor so bored by their relative dullness that the stimulation necessary to the exertion of their best efforts is wanting. The fact that community groups, representing voluntary associations of individuals with common interests and purposes, include all orders of ability has implications for the school. During the process of interaction various talents and capacities may be revealed, with the result that a number of sub-groups may be formed to facilitate the functioning of the larger entity. In the school community, likewise, sub-groupings should take cognizance of individual differences in experience, ability, sex, social origins, and the like within a group the members of which are homogeneous with reference to a single interest. The available evidence in support of the contention that patterns of ability exist among all children regardless of intellectual level suggests the inadequacy of the composite score as a general criterion in the sectioning of pupils. The expected contribution of a pupil in any group should not be at variance with the measure that his experience, mentality, and manifested interests indicate he is capable of achieving; and as new preoccupations appear, provision should be made for their development as completely as the best interests of the child will permit.

In view of the fact that under present arrangements the school controls at least six of the child's waking hours each day for from eight to twenty years, it should be expected to assume a substantial share of the responsibility for his personal integration and social func-

tioning. These objectives, however, constitute two aspects of a single reality; namely, the development of the whole child, which may be achieved through participation in socially approved groups representing every aspect of his personality. But membership in the school group may contribute little to such integration if the child fails to find opportunity to function in the normal activities of school life, both social and intellectual. Thwarted children will not long continue to remain disinterested observers in any arena of activity. They may find satisfaction in secondary contacts, which contribute little and may even prevent personality integration, or they may seek self-expression in gang activities and other patterns of behavior that the mores condemn.

The need of an individual to succeed, which may be explained by the traditional requirement of success in some line of endeavor as a condition of social approval and acceptance, is a problem that cannot be considered apart from the fact of individual differences. The existence of inequalities between individuals has been recognized by observers in groups both simple and complex, and in cultures both near and remote with reference to time and space. The vigorous growth of the democratic ideal in Europe and America during the last few centuries, however, has tended to encourage an attitude unfavorable to a just appreciation of such variations; but ignoring such differences has eliminated neither the inequalities among men nor the tangible evidence of their existence.

That other factors besides intelligence are necessary concomitants of the personality of the successful individual has also been recognized. The researches of numerous investigators tend to confirm the argument that achievement is a function of interest, persistence, experience, and many other factors as well as mentality. But it is in the process of interstimulation and response within the group that such varying innate and acquired characteristics are developed and attain significance. In other words, personality integration and adjustment are functions of group life.

V. GROUPS AND SOCIAL INSTITUTIONS

The concept of institution, long since recognized as a sociological category, has contributed little, it is contended, to the understanding of human behavior in actual situations. That complex which the sociologist calls an institution is, from the standpoint of the individual psychologist, "merely similar and reciprocal habits of individual behavior together with tools which individuals have constructed in carry-

ing them out." Since the term institution merely describes a pattern of "similar and reciprocal behavior," the psychologist seeking formulations in terms of natural-science units has decreed that "we may speak of institutionalized behavior but not of an institution."¹

To the sociologist,² however, groups consisting of interacting individuals with 'common reciprocating attitudes' and 'conventionalized behavior patterns' form merely the behavior part of the pattern of a social institution. Other parts of the pattern are: (1) symbols charged with meaning to which behavior has been conditioned, such as an idol, a swastika cross, a trademark, or a sacred relic; (2) codes governing the interrelations between cultural elements and individual attitudes and behavior, such as a constitution, a charter, or law; and (3) property, consisting of material culture traits of utilitarian value, such as buildings and their equipment. In other words, the sociologist contends that a complete understanding of human behavior involves a consideration of the culture traits and complexes to which responses have been conditioned and of the cultural elements entering into the patterns of interstimulation and response between individuals.

Chapin has given as a more recent definition: ³

A social institution is an organized pattern of the attitudes and behaviors of the members of a group that stands out as a configuration against the field of culture. It consists of segments of individuals' behaviors organized into a system, and not of whole individuals or groups. It consists chiefly of customs and traditions, but in some cases material culture traits are tied into the configuration through the process of conditioning.

The nucleated social institution,⁴ a basic functional grouping such as the family, the church, and the school, consists of a configuration of four type parts; a pattern of attitudes and behavior, symbols, code, and property. As an illustration this analysis may be applied to the school as a social institution. *Patterns of attitudes and behavior* develop from the interaction of pupils, parents, teachers, administrative officers, local boards and state departments of education; representations of the scroll, the Greek lamp, the school emblem, or books sym-

¹ F. H. Allport. "The nature of institutions." *Social Forces*, 6: 1927, 167-170.

² F. S. Chapin. *Cultural Change*. The substance of the following paragraphs is taken from Chapter II, "The Accumulation of Culture," 44-52.

³ *Contemporary American Institutions*, p. 412.

⁴ *Ibid.*, pp. 13, 216, 319, 330-333, 338-339, for definition and examples.

bolize learning; *codes* governing behavior exist in the form of parts of local charters and state constitutions, laws and ordinances, and school regulations; and institutional *property* consists of buildings and grounds together with their equipment.

The behavior of individuals is conditioned to these cultural parts of institutions as well as to other persons in the group. The cross, the flag, or a certain trademark constitute *cue stimuli* to varying types of response explainable in terms of learning. Different patterns of conduct are approved at home, school, church, or store; and objects such as chairs, desks, pews, or counters represent meanings largely in terms of utility.

Groups that persist and have definite organization are usually parts of some social institution. They represent the relatively permanent groupings universally maintained to satisfy elemental human needs. In contrast with fortuitous associations they have the stability inherent in structures that have become rigid during long years of cultural accretion. Folkways, mores, and traditions support and reinforce one another, thus rendering such groups comparatively inflexible and resistant to the forces of change.

Individuals in the school situation have been conditioned to school marks, classroom codes, school property, and persons or symbols representing authority. They have not, however, been conditioned to groups concerned with practical problems involving facility in the use of fundamental skills and techniques. Attention has been directed toward the development of language and number skills, mechanical dexterity, and ability to interpret social relations as ends in themselves rather than as tools requisite to the performance of tasks representing integral parts of an ultimate group objective. Parts of ultimate group objectives may be illustrated by clear, concise summaries of data gathered for a group project, accurate score-keeping during interclass events, speedily and accurately typed minutes of class meetings, or judgments based upon inquiry into both sides of the issue in intragroup controversies.

True group activity within the schoolroom has sometimes been limited to occasional combinations against the teacher or deviants from the school code. Children have not been conditioned to one another as functioning members of purposeful groups in which interests are identical, and in which every member has both inferiors and peers with reference to the main consideration during the learning process. Teachers' estimates of relative achievement, expressed in the form of marks,

have constituted a scale in terms of which children have measured their own accomplishments compared with those of their associates. But real appreciation of the efforts expended by others in coöperative undertakings of mutual interest, to which each has contributed in proportion to the nature and degree of his talents, has received scant emphasis.

VI. GROUPS AND SOCIAL SECURITY

Two kinds of security are requisite for satisfactory individual adjustment: physical security, consisting of material necessities in the form of food, clothing, and shelter in quantities sufficient to maintain life; and emotional security, or group ties of varying degrees of intimacy adequate to meet the individual's need for association with others. For the normal individual the optimal social security consists in maintaining the suspension of his personality in a network of group contacts, including the family, business, school, church, political party, and others.¹ An excess or defect of opportunity to function in any of these groups — according to the pattern of individual requirement — may, if the discrepancy be sufficient, eventuate in frustration, discouragement, conflict, and other concomitants of personal maladjustment. But such disabilities are not endured indefinitely; the individual seeks release from the impinging forces that harass him, with the result that conflicts are resolved and equilibrium restored by utilizing the most expedient means available. Thus, thwarted incompetents in the various fields of approved group activity, in terms of which success and status within the community are measured, constitute the raw material from which the extra-legal organizations of the underworld are created.²

For the community, on the other hand, the optimal social security consists in maintaining a moving equilibrium of social forces among its groups and institutions. First there are those personal-social forces that arise out of leadership, reform movements, and conventional political action. When certain groupings within the community acquire power out of proportion to the needs they satisfy and the number of people they serve, or when other agencies serving major needs among many individuals are hampered in their activities, a state of maladjustment exists within the community and adjustments must precede the restoration of equilibrium. If, for example, powerful corporations are so successful in dominating the community situation that local tax

¹ *Ibid.*, pp. 220-222.

² *Ibid.*, pp. 43-47, 49, 62.

rates are maintained on a level so low that adequate provision for community health, educational, and recreational requirements are thereby precluded, the necessary adjustment must be made. Similarly, an inordinate amount of control concentrated within the narrow circle of a political leader and his allies may constitute a signal for readjustment within the local area.

Second, there are those social forces that arise out of the unplanned combinations of individual behaviors. An elaborate network of relationships, which have developed from changes in communication, has led to the consolidation of numerous communities into metropolitan areas. Stimulations originating at the center spread to peripheral regions, and the repercussions growing out of the resultant mass response, composed of numerous individual decisions, may enmesh all within a morass from which none can extricate himself unaided. The hoarding of gold in consequence of numerous individual decisions; runs on banks occasioned by separate individual responses; and unplanned combinations of blocs of group behaviors, such as the silver bloc and the inflationist bloc in Congress that supported a United States silver purchase policy resulting in monetary deflation in China and Mexico, are illustrations of this type of social force.

A schoolchild's group contacts, as contrasted with those of an adult, are for the most part confined to the family, the neighborhood, and the school, with an increasingly larger share devoted to the school as the child grows older. Personality integration is an accompaniment of participation in groups approved by the mores. To the extent, therefore, that an individual fails to function in any one or more of the groups representing his social world, the feeling of social security may be lacking.

For the school community, likewise, the attainment of the optimal social security may be expected to materialize according to the degree to which equilibrium is maintained between its various groupings, and in direct proportion to the number of individuals absorbed into the legitimate (approved) activities of its group life. Personal-social forces within the school may arise out of leadership in approved group activities, or they may develop from preoccupations condemned by the mores of the school and community. A child who has failed to find the satisfaction he sought in school may not only become a problem child himself, in consequence of frustration and conflict, but also the leader of other less aggressive children who have been similarly disappointed in their efforts to attain status.

Impersonal social forces within the school also parallel those of the larger community. Excessive independent individual cheating may necessitate the introduction of rules burdensome alike to teachers and pupils. Similarly, if balls are too frequently pursued in the gardens of adjacent property owners certain games may be prohibited, despite the unintentional nature of the cumulative damages.

VII. THE RÔLE OF THE SCHOOL

Education does not exist independently of its social and cultural milieu. The school is an intermediate group within the community, representing a substantial portion of the world of its members. Its rôle as a social institution is to assist in training members of the younger generation in the art of social living at their age and ability levels. In the lower levels of the educational hierarchy the objective has been to drill each child in the conventional mechanisms of communication, such as language and number skills, so that they might become automatic mechanisms upon which the child may rely, and to interpret social relations through literature, science, and mathematics. The school should also encourage the development of social insight by developing appreciation of the cultural diversity within the community as revealed in the foreign, religious, occupational, and other groupings; by training in the abstract conceptualization of our increasingly complex society necessary to a comprehension of the meaning and function of overhead organizations and centralized controls; and by fostering attitudes receptive to recurrent changes.

But manipulation of language and number symbols, interpretation of experience, development of insight, and recognition of the inevitability of cultural change are necessary components at every point in the educational process. Simple number skills pave the way to abstract number concepts and facility in language expression leads to creative English. Similarly, social insight deepens and the wider significance and implications of changes are grasped. Skills and techniques have little significance at any age or ability level apart from the life situations of which they form a necessary part, and interpretations couched in abstract verbalisms are essentially meaningless to either child or adult. Since all learning has its genesis in the naïve experience of the individual, new ideas, to acquire significance, must be related to experiential background.

Thus, 'experience in living' should not constitute a category apart from traditional drilling or the development of social insight. True

learning may be expected to take place at every level in proportion as the child's past experience, his mental endowment, and his own immediate problems as he conceives them are taken into account. Academic and functional learning should proceed simultaneously with emphasis depending upon the needs of the child in terms of his personal characteristics. Learning the multiplication table as an end in itself is important to few children, but as an indispensable tool in developing a project or meeting a life situation it may take on real meaning to the learner beyond the marks obtained, together with such rewards or punishments as they might yield.

Since curriculum requirements are originally formulated with reference to their efficacy as aids in effecting life adjustments, it would seem reasonable to expect them to bear some relation to the life problems and interests of school children. A variety of extra-curricular activities parallel the groupings outside the school to the extent that membership is voluntary and terminable at will. Such groupings include athletic associations, student-government organizations, dramatic and art clubs, publishing associations, debating societies, craft and musical organizations, and a host of clubs with different interests. As in the case of community organizations, intellectual, manual, and social skills should be permitted to develop simultaneously throughout a process in which a teacher's task is to guide rather than to drive.

Recognition in the form of school marks for all forms of directed activity, including extra-curricular as well as curricular activities, might be expected to yield several advantages of interest to the community at large as well as to pupils, parents, teachers, and school administrators. In the first place, objections to 'ability grouping' advanced by parents and educators alike, on the ground that 'slow' children will be stigmatized for all time, might be removed. When intellectual capacity constitutes the sole criterion, or even the most important one in the process of grouping, certain children will find themselves labelled 'slow' in practically all formally recognized activities, since a majority of these are centered in subjects that place a premium on the ability to acquire verbal knowledge. At this point parents interfere and children, at odds with both home and school, and hence, with the greater part of their world, seek a more satisfying sphere of activity. If, in contrast, mechanical ability and artistic aptitudes, the ability to inspire and direct others, and similarly unique traits were so recognized that a child who had proved slow in some field might find himself rated 'average' in another group and 'superior' in

the field of his special interest, that child might devote a relatively large share of his time and attention to the latter.

Such recognition of achievement in every field of activity might ultimately lead to the development of a system of placement within the social structure according to individual abilities. If indices of proficiency in all lines of endeavor were available, and if such individual traits were described and measured in terms identical with those in which requirements for adequate performance of the numerous specialized tasks of our complex social organization are stated, fewer misfits might be expected to occur in group functioning. Under such a system a personnel position would not be awarded on the basis of excellence in mathematics, nor would a job in which mechanical ability was the major requirement be assigned to the former captain of the local basketball team in recognition of that phase of his experience.

The development and use of more adequate techniques to aid in the identification and measurement of unique traits other than mentality, and to facilitate more accurate classification of pupils in terms of the degree to which they possess certain qualities requisite to successful performance of specific types of group functioning, is a third advantage that might be expected to accrue. Prediction techniques based upon training in terms of the measured characteristics of the pupils, which may ultimately become sufficiently accurate to enable educators and employers to select prospective employees in terms of the units of both personal traits and job requirements, would yield inestimable economies in human as well as material resources.

If "school is life and not just preparation for life," the acquisition of habits, attitudes, and techniques that will facilitate adaptation to life in a changing world, rather than detailed information, should constitute the paramount aim of education. Since that world is peopled by individuals organized into functional units, every child should be trained to live and participate in the activities of groups; and since the fact that individuals differ in their abilities to perform the various necessary functions in group life has been established, every child should likewise be trained to evaluate his own abilities in terms of the requirements of changing situations. If gifted children are to become leaders of men, they should learn, through experience in group life approximating and paralleling the groupings of the larger community as nearly as possible within the school situation, that the privileges of leadership are balanced by its responsibilities. And if children less fortunately endowed with inherited qualities are to be saved from maladjustment induced

by the noticed discrepancies between assertions of equality among men and the facts of actual life, they must be taught acceptance of self and acceptance of difference through coöperative experience in which all but a few have both superiors and inferiors in the majority of situations, but in which every participant performs a necessary task.

In conclusion, our insistence that the social group is an integral entity in education is based upon two assumptions: first, that highly individualized instruction is suitable only for such extreme children as the subnormal who require case work for the adjustment of their personalities or for the very superior who may benefit from tutorial guidance; and second, that the great majority who will become average members of society require experience in group participation while in school.

BIBLIOGRAPHY

Allport, F. H. "The nature of institutions." *Social Forces*, 6: 1927, 167-179.

Allport, F. H. "The group fallacy in relation to social science." *Jour. Abn. Psy.*, 19: 1924-25, 60-73.

Allport, F. H. *Social Psychology* (Boston: Houghton Mifflin Co., 1924, 453 pp.).

Bernard, L. L. (Editor). *Fields and Methods of Sociology* (Long & Smith, 1934, 529 pp.).

Chapin, F. S. *Cultural Change* (New York: D. Appleton-Century Co., 1928, 448 pp.).

Chapin, F. S. *Contemporary American Institutions* (New York: Harper & Brothers, 1935, 423 pp.).

Cooley, C. H. *Social Organization* (New York: Scribners, 1909, 426 pp.).

Coxe, W. W. "Grouping pupils for purposes of instruction." *Nation's Schools*, 3: 1929, 45-54.

Coxe, W. W. "Our homogeneous-ability grouping confusion." *Jour. Educ. Research*, 25: 1932, 1-5.

Kefauver, G. N. "The validity of bases for forming ability groups." *Teachers College Record*, 31: 1929, 99-114.

McGaughy, J. R. "Some vital considerations in homogeneous ability grouping." *Addresses and Proceedings, National Education Association*, 1932, 139-141.

McGaughy, J. R. "Fallacies in homogeneous grouping." *Department of Superintendence of the National Education Association*, Official Report, 1932, p. 210.

Sauvain, W. H. *A Study of the Opinions of Certain Professional and Non-Professional Groups Regarding Homogeneous or Ability Grouping* (New

York: Teachers College, Columbia University, Contributions to Education, No. 596, 1934).

Sorokin, P. A. *Social Mobility* (New York: Harper & Brothers, 1927, 559 pp.).

Sorokin, P. A., Zimmerman, C. C., and Galpin, C. J. *Systematic Source Book in Rural Sociology* (University of Minnesota Press: Minneapolis, Minnesota, 1930, 645 pp.), Vol. I.

Symonds, P. M. "Homogeneous grouping." *Teachers College Record*, 32: 1931, 501-517.

Wallis, W. D. "The independence of social psychology." *Jour. Abn. Psy.*, 20: 1925-26, 147-151.

West, Parl. *A Study of Ability Grouping in the Elementary School* (New York: Teachers College, Columbia University, Contributions to Education, No. 588, 1933).

CHAPTER VI

THE PSYCHOLOGICAL BASIS OF GROUPING

AUSTIN H. TURNEY
Associate Professor of Education, University of Kansas
Lawrence, Kansas

I. INTRODUCTION

Two questions immediately arise when one attempts to establish bases for ability grouping. The first and most fundamental is: Shall there be any grouping for learning purposes? The second is: What is the aim or purpose of ability grouping? The first question will require but little attention in this chapter. We shall assume that some form of grouping is accepted. Few of the most ardent opponents of ability grouping in the past have argued for no grouping; for the most part they have argued for heterogeneous rather than the so-called 'homogeneous' grouping.

There has been, moreover, much confusion regarding individual instruction. Much of the discussion of individualization seems to ignore the facts that to educate individuals in isolation would be utterly impossible in practice and that there is little or no evidence that extreme individualization provides a better learning or developmental situation. Ability grouping, as will be readily seen in this and other chapters, is not opposed to, but favors, individualization within groups. In fact, the prevailing tendency is to recognize that the school and the class are social groups. In modern educational theory learning, or development, is conceived of as a social phenomenon more often than as a phenomenon of isolation. Further, apparently very few, if any, of the theorists in education who discuss socialized or non-socialized educational situations, have rigorously defined their terms.¹

1. Grouping of Some Kind Is Universally Accepted

The first question cannot be, and has not been, ignored in the discussion of the aims and purposes of ability grouping. It is obvious that the grouping that has been done in the past came about because it was

¹ Cf. R. E. Park and E. W. Burgess. *Introduction to the Science of Sociology* (Chicago: University of Chicago Press, 1924), Chapters IV and V.

sincerely thought that by grouping the learning situation was improved. Implied in all the definitions of grouping and in all the advantages ascribed to it is the assumption that such was the thought. I have treated at some length elsewhere the purposes and definitions of ability grouping.¹

In this connection it is pointed out that "it requires the presentation of no experimental evidence to convince most people that extreme heterogeneity would not be a desirable situation for the learning of school subjects." The grade system that has developed with its more recent differentiation into IA and IB, 2A and 2B, and so on, represents an attempt to group together pupils presumably alike in ability and attainment. That these attempts have not been satisfactory is attested by the efforts to refine the existing classification further by introducing various forms of grouping. Many of these are now in use and are likely to continue for some time, as for example, special classes for the feeble-minded, opportunity rooms for the gifted, the so-called 'homogeneous sectioning' of large classes, entrance requirements, certain types of vocational schools, and ungraded rooms. It is well to bear in mind the extent to which some sort of grouping is accepted almost without question as we continue in our efforts to improve the learning situation.

2. The Purpose of Ability Grouping

As revealed by past practices, the dominating aim of ability grouping has been to improve the learning situation by bringing together "pupils who will be alike in achievement at the end of a period of learning."² This aim put an emphasis upon prediction and resulted in the use of and search for predictive indices. It is a matter of common knowledge that ability grouping made great strides with the advent of mental tests because they were, by and large, fairly good predictive indices. When correlation after correlation was forthcoming showing a far from plus one correlation between some measure of mental ability and some measure of achievement,³ so fixed was the idea of prediction that the almost universal explanation of the discrepancy was

¹ A. H. Turney. "The status of ability grouping." *Educational Administration and Supervision*, 17: Jan. and Feb., 1931, 21-42, 110-127.

² P. M. Symonds. *Measurement in Secondary Education* (New York: Macmillan, 1927).

³ A. H. Turney. *Factors Other Than Intelligence that Affect Success in High School* (Minneapolis: Univ. of Minnesota Press, 1930). Chapter I gives a summary of many of these studies.

'unreliability of the measures.'¹ Naturally this idea of accurate prediction affected the users of ability grouping, so that much criticism arose and much premature condemnation ensued. This was further complicated by many studies of overlapping of achievement, especially in recent years.²

Very early, a few, and later on, many students of the problem began to stress other factors in achievement; industry, perseverance, ambition, and a host of other traits.³ But to the present day this has resulted in no very constructive advances in the bases of ability grouping. It is still rather widely held that, if we could only find the correct admixture of the right ingredients, we could predict subsequent achievement accurately and then we could place children in the proper group, secure in the faith that no overlapping would occur.

Now I do not wish to imply that no advances whatever have been made. Improvement in the use of mental tests for ability grouping has occurred, when mental age and intelligence quotient were combined, or when chronological age was held constant. When past achievement was added, thereby reflecting motivation, an even better outcome seemed to follow; that is, better prediction and less confusion in results. But still the idea of prediction dominated; discrepancies, as shown by relatively low correlation, and overlapping in achievement resulted in continued misunderstanding.

3. Some Erroneous Assumptions

Much of the difficulty seems attributable to certain erroneous assumptions. One of them is that achievement in most school subjects is dependent almost entirely upon 'intelligence' and that the composition of most school subjects is similar. A second one is that the relation between intelligence and achievement is static. Both these assumptions will be dealt with later. Suffice it to say here that it is not necessary to look upon arithmetical reasoning, or vocabulary, or any other evidence of achievement in school subjects, either as special abilities in their own right or as all 'intelligence.' In fact, we would best discard the term 'intelligence' and say that if the basis of grouping most used

¹ See, for example, the *Manual of Instruction* with the A. R. C. Tests, 1933, p. 4.

² A typical example is: M. Y. Burr, *A Study of Homogeneous Grouping in Terms of Individual Variations and the Teaching Problem* (New York: Teachers College, Columbia University, 1931, Contributions to Education, No. 457).

³ A. H. Turney. *Factors Other Than Intelligence*, etc.

— namely, mental tests results — measures some variable, let us say X, vocabulary might be 80% or 90% X and a little of something else, while spelling may be 40% X and a great deal of something else. It still may happen that for practical purposes our best basis would be a measure of variable X, yet we should not expect our grouping to function equally well in all school subjects.

The second assumption — static relation between intelligence and achievement — has been more tenacious than the first. It overlooks two conditions, first, that even if we measured by a mental test the amount of the variable, X, possessed by each child, and even if success in most school subjects were largely dependent upon this X, the extent to which this ability might be used in school will vary from subject to subject in the case of a given child. Because of differences in motivation, it might vary also between children of the same ability studying the same subjects. Second, a teacher may drastically affect the opportunities for using this ability by altering her subject matter and method. Over and over again, among the advantages of ability grouping have been listed “ that it makes possible the adaptation of subject matter and method ” and that it “ permits pupils to progress at their own rate of speed ”; furthermore, the few experiments in which subject matter and method were definitely altered have been strongly favorable to ability grouping.¹ Yet the predictive idea in ability grouping with these two attendant erroneous assumptions has generally been taken for granted.

Turning now from the predictive aim of ability grouping, let us consider what might be called a developmental aim. I have suggested the definition: “ *The aim of ability grouping is to bring together pupils who will be able to work together and to progress together under conditions permitting the fullest possible development of the individuals involved.* ”² Such a definition is less specific than the one previously considered. Certain delimitations must be made before it can have much meaning. In the first place the “ work ” and the “ progress ” must be limited to the major activity of the school — that undertaken in the classroom. We hold to the assumption and its implications that the school exercises the greater part of its influence upon the development of the child through activities which take place in the classroom, and these activities inevitably employ subject matter. Or to put it in other words, we assume that children will study and learn together, and we are now not so much concerned with prediction as with develop-

¹ A. H. Turney. “ The status of ability grouping,” *loc. cit.*

² *Ibid.*

ment. To secure this development the school will attend to motivation, to discrepancies between the child's ability to learn and his learning. It will be concerned with attempting to provide a situation permitting each child to utilize his ability maximally and as much of the time as possible. It will attempt to develop industry in study, and will be much concerned with attitudes and interests, as we shall see later.

It can be readily granted that this developmental aim can supersede the static aim without necessitating new instruments for use as a basis of sectioning. Yet we need very much to revise our interpretation of the bases used. We need a different emphasis upon some aspects of learning and upon some of the outcomes of the learning situation and we need a different understanding of the teacher's problem in subject-matter selection and in measuring achievement.

4. Problems to Be Considered

Before finally deciding upon the best basis for grouping, we must review and analyze the following problems related to ability grouping:

1. Present practices in respect to bases used.
2. Aspects of learning of major importance to ability grouping.
3. The nature of intelligence or, more specifically, of the variable measured by mental tests.
4. The nature of so-called 'trait differences' and special abilities.
5. Problems of measurement in relation to ability grouping.

II. PRESENT PRACTICES

Our purpose here is twofold; first, to show the confusion in the bases of grouping in recent use; second, to attempt to evaluate the various bases from the standpoint of their desirability in promoting effective mental development. Both Rankin¹ and Billett² have summarized practices. We have drawn from these and other sources and have found that the following twenty-three variables have been used, either singly or in conjunction with one or more additional variables, as the basis of grouping. To facilitate discussion, the variables have been grouped under seven main categories, but it should be noted that this list is not complete and that not all of the criteria have been widely used.

¹ Paul T. Rankin. "Pupil classification and grouping." *Review of Educational Research*, 1: 1931, 200-30, 238-44.

² R. O. Billett, *Provisions for Individual Differences, Marking and Promotion* (U. S. Office of Education Bulletin, 1932, No. 17, Monograph 13).

CLASSIFICATION OF VARIABLES USED AS BASES FOR GROUPING

- A. Physical Development
 - 1. Chronological Age
 - 2. Physical Maturity
 - 3. Physiological Maturity
 - 4. Health
 - 5. Height
 - 6. Weight
 - 7. Anatomical Age
- B. Intelligence
 - 8. Intelligence Test Results
 - a. Raw Score
 - b. Mental Age
 - c. I. Q.
 - 9. Teachers' Ratings, Singly or Average
 - a. Of Ability to Learn
 - b. Of Section to Which Pupil Belongs
 - 10. Probable Learning Rate
- C. Achievement
 - 11. Achievement Test Results
 - a. Educational Age
 - b. Achievement Quotient
 - c. Subject Age or Subject Quotient
 - d. Raw Scores on One or More Subject-Matter Tests
 - 12. Teachers' Marks in One or More Subjects
 - 13. Rank in Class
- D. Motivation
 - 14. Ratings or Judgments on Traits (like Industry and Application)
 - 15. Achievement Quotients or Similar Indexes (see 11 above)
 - 16. Rank in Class (see 13 above)
- E. Social Factors
 - 17. Social Age or Maturity
 - 18. Home Environment
- F. Special Abilities and Interests
 - 19. Prognostic or Placement Test Results
 - 20. Special Ability Tests (as in Music)
- G. Special Disabilities
 - 21. Defective Vision or Hearing
 - 22. Physical Deformity
 - 23. Speech Defects

It will be seen at once that some of the criteria overlap. The outstanding fact to be noted is the mixing of evidence of native ability and degree of motivation. Past achievement is always an index of

these two variables, no matter how complex they may be.¹ It is evident, of course, that if immediate prediction is desired, both the native ability and the degree of application need to be considered. But if the objective is to improve the learning situation from the point of view of its developmental aspects, the foremost and fundamental criterion is the measure of native ability, or as we shall call it, 'g.'

Of course, it should be recognized that in practice modification must be made. Our only contention is that any subsequent addition of other criteria for grouping should leave in relief the fundamental basis, because only by so doing will the success or failure of the school be continually apparent.²

By this statement we do not imply inflexibility. It needs no great argument to show the desirability of subordinating the fundamental criterion in the case of children grouped by criteria in Category *G*, above, and in some cases by criteria in Category *F* when the latter is concerned with definitely special abilities such as mechanical ability or musical discrimination. But even prognostic tests, when concerned with prognosis in academic work, may well be subordinated to the general criterion discussed in the preceding section of this chapter, except when in later school years permanent choice of an occupational or vocational sort is made. A brief discussion of these bases is in order before proceeding farther.

1. Physical Development as a Basis for Grouping

Chronological age, physical maturity, anatomical age and physiological maturity are of course related to the basic criterion we have suggested, since the ability of the average child increases with age. But the relations, as is well known, are so imperfect that the age-grade system developed on this basis has failed to satisfy. It is this very situation that has given rise to ability grouping. Little more need be said with regard to the seven criteria in this category except to point out that in any practical situation extremes in chronological age, or health, or even height may need supplementary attention.

2. Intelligence as a Basis for Grouping

The criteria listed under *B* need little comment here. We have presented on the following pages an interpretation of the measurement

¹ A. H. Turney. "Intelligence, motivation, and achievement." *Journal of Educational Psychology*, Sept., 1931, 426-434.

² *Ibid.*

of intelligence which in our judgment is more serviceable than the usual interpretation. We shall hereafter use the term 'ability' in this chapter to refer to the variable designated as 'g.' In the final portion of the chapter we shall indicate what in our judgment is the most practicable approach to grouping on the basis of ability so defined.

It is obvious to anyone familiar with the literature that teachers' judgments as a measure of ability are not so reliable as test results. Binet,¹ Terman,² and Hollingworth,³ have stressed this, to mention only a few.

The P.L.R. or probable learning rate, is not a widely used term and because of this I hesitate to discuss it. It seems to have two possible meanings: first, as a substitute for the term 'I.Q.' (as in Cleveland, where it is used to distinguish the end result of a group test from the result of an individual Binet examination) and as a term more acceptable to the layman than is I.Q.; and second, in some other cities, as an index loosely describing a combination of ability and motivation. In the latter sense the term might be even more useful, as well as quite appropriate descriptively. However, in this sense, when used as a basis for grouping, it is open to the same objections that are to be found in the case of other measures of past achievement used for that purpose.

To use either the P.L.R. or measure of past achievement may mean the placing of a very bright child in a middle or low group where he can receive no intellectual stimulation whatever, or it may mean the placing of a dull but extremely industrious child in a group really too advanced for him. Both of these conditions will be clarified more fully in the next paragraph.

3. Measures of Achievement

This criterion needs to be considered both singly and in combination with the bases just discussed. Brooks' report is typical of those showing that past achievement is as good an index of immediately following achievement as intelligence, or even a better index.⁴ Such data have been cited by some, *e.g.*, Kefauver,⁵ as indicating that past achievement

¹ A. Binet and Th. Simon. *The Development of Intelligence in Children* (Translated by E. S. Kite, Vineland, New Jersey, 1916).

² L. M. Terman. *The Measurement of Intelligence* (Boston: Houghton Mifflin Co., 1916).

³ L. S. Hollingworth. *Gifted Children, Their Nature and Nurture* (New York: Macmillan, 1926).

⁴ F. D. Brooks. "Sectioning junior-high-school pupils by tests and school marks." *Journal of Educational Research*, 12: 1925, 359-369.

⁵ G. N. Kefauver. "The validity of base for forming ability groups." *Teachers College Record*, 31: Nov., 1929, 99-114.

should always be evaluated in grouping. We have previously criticized the practice,¹ yet it is so prevalent that its defects ought to be entirely clear if it is used. For example, let us suppose six pupils finishing the sixth grade are to be assigned to X, Y, or Z groups for the beginning seventh grade next fall. The pupils are AA, AC, CA, CC, DC, and DD, in which the first letter refers to their ability (A, C, or D) and the second letter to their achievement (A, C, or D). Pupils AA, CC, and DD present no anomalies, but are assigned to the X, the Y, and the Z groups, respectively. Pupil AC is a very able pupil but has not been stimulated. Perhaps he has loafed for six years. His average grade is C, either by marks or achievement test results. He would be placed in the Y group and probably continue his same relative performance. Pupil DC is industrious. He has done the same quality of work that AC and CC have done and is placed in the Y group. He may have exerted himself greatly to maintain his C status in the sixth grade. If the seventh-grade work represents progress in richness and difficulty, he is likely to meet a situation destructive to his mental poise. In my experience this is the only condition and the outstanding one justifying the often repeated claim that, owing to ability grouping, children overwork or develop inferiority complexes. If and when grouping is done on the basis of past achievement alone, this condition may appear.

Teachers' marks, as a measure of past achievement, are to be interpreted in the same way, with certain obvious additional features to be considered. First, the unreliability of marks is notorious. That they may under certain conditions be better than objective test results may be granted, though this is probably more the exception than the rule.² In favor of teachers' marks we may assert that they evaluate some outcomes of teaching not measured by objective tests, but that is difficult to prove. We prefer to raise the question whether marks with all their subjectivity could measure genuine mental development better than would constructive objective tests. That they reflect the factor of motivation over and above the actual influence of motivation upon achievement makes them perhaps a less desirable basis of grouping than the better type of achievement tests.³

In considering rank in class as a measure of achievement we are thrown back on the basis of ranking. If the teacher's judgment is the

¹ "The status of ability grouping."

² A. H. Turney. *Factors Other Than Intelligence*, etc.

³ W. S. Miller, *Problems of College Education* (Minneapolis: University of Minnesota Press, 1928), Chapter 23, "College Marks."

base, this criterion corresponds to marks. If objective tests are the criterion, then the comments already made in respect to achievement tests apply.

A somewhat different picture is seen when some measure of past achievement is added to a measure of ability. In this case subsequent achievement may be better predicted. But again we wish to emphasize that such bases tend to minimize the possibilities of more complete development. In the case of the bright child it may result in inferior application, in the case of the dull child, in an onerous situation destructive to his personality.

This criticism does not, of course, apply to the use of the double, as distinguished from a combined, base as in two Cleveland schools, Paul Revere and West Technical, described elsewhere in this Yearbook. There, after grading, pupils are classified according to I.Q. or P.L.R., and further, inside these groups by levels of achievement. Indeed, if administrative difficulties can be overcome, this is a legitimate use of achievement to promote the best development of the child.

4. Motivation as a Basis of Grouping

For practical purposes only three approaches to the measurement of motivation (industry and perseverance) are available as a basis of grouping: one is the teacher's rating; a second is an index of the relation between achievement and ability (as the A.Q. or the Z-score technique);¹ a third is a measure of achievement. This last is, however, a mixture of motivation and ability, and as such needs no further consideration.² Theoretically something is to be gained by using an index of motivation and an index of mental ability rather than past achievement. By so doing, a clearer picture of the child's situation is gained. In practice, however, I have for some years grouped on the basis of mental age and intelligence quotient and then worked out the discrepancy afterwards as an aid in interpreting the learning situation. For practical purposes we do not regard an index of motivation as a very usable technique in grouping.

We cannot dismiss this topic without repeating that it is for the purpose of improving the application of ability to the restricted environment of the classroom that we advocate the single criterion, the measure

¹ P. M. Symonds. "A studiousness questionnaire." *Journal of Educational Psychology*, 19: 1928, 152-167.

² A. H. Turney. *Factors Other Than Intelligence*, etc.

of ability, for grouping. *Let it be noted that it is not to predict the degree of application, but to develop application, that this is done.*

5. Social Maturity

No one interested in child development would insist on grouping on our single criterion and entirely ignore social factors. Certain comments are needed regarding this category of criteria. First, we have no index of social maturity comparable to the index of mental maturity available. Second, if social development is independent of mental development, we have no very clear conception as to how much or in what way it is. We are more or less forced to the position of handling asocial individuals as special cases. When, because of asocial behavior, transfer of one or more pupils is indicated, certainly no one would object.

On the other hand, the evidence, even though meager, available from the studies of Engel,¹ Goodrich,² Lamson,³ Turney and Hyde,⁴ and Sauvain⁵ indicates that, in a preponderant majority of cases, ability grouping either does not affect adversely or definitely promotes social adjustment.

6. Special Abilities and Interests as Basis of Grouping

The outstanding theoretical issue here is whether or not the apparent special ability is a genuine one or merely unusual development in a narrow field due to strongly motivated application of ability to that field to the exclusion of others. The school has been criticized by Kelley,⁶ Segel,⁷ and others for its emphasis upon defects rather than

¹ Anna M. Engel. "Comparison of class ratings of pupils in special advanced classes with accelerated pupils in regular classes in Detroit Public Schools," in *Gifted Children, Twenty-Third Yearbook of this Society*, Part I.

² T. V. Goodrich. "Influence of homogeneous grouping on pupil personality." *School Executives Magazine*, 50: Feb., 1931, 259-264.

³ Edna E. Lamson. *A Study of Young Gifted Children in Senior High School* (New York: Teachers College, Columbia University, 1930, Teachers Coll. Contrib. to Educ., No. 424).

⁴ Turney and Hyde. "Attitude of junior-high-school pupils toward ability grouping." *School Review*, 39: Oct., 1931, 597-607.

⁵ Walter H. Sauvain. *A Study of the Opinions of Certain Professional and Non-Professional Groups Regarding Homogeneous or Ability Grouping* (New York: Teachers College, Columbia University, 1934, Contrib. to Educ., No. 596).

⁶ T. L. Kelley. *Interpretation of Educational Measurements* (Yonkers: World Book Co., 1927).

⁷ David Segel. *Differential Diagnosis of Ability in School Children* (Baltimore: Warwick and York, Inc., 1934).

upon strength. The criticism may be very just, but to carry the interpretation so far as to imply that even dull children may be directed toward life occupations on the basis of differential diagnosis revealing greater relative achievement in arithmetic or geography, for example, seems to be unwarranted in the light of our present knowledge. It is important to note the difference between relatively great achievement in a narrow field due to application of ability to that field, such for example as literature, and a genuine special ability, such as music. It is a nice question whether or not the elementary and secondary school should provide narrowing of interest to a single field of success in which achievement is the result of interests rather than real special ability.

On the other hand, at higher school levels or later chronological ages prognosis tests as an indication of possible success might well supplement, and perhaps in some instances supplant, measures of ability. This whole matter should wait upon more careful determination of such terms as 'special ability' and 'validity.'

In the case of genuine special abilities, if they exist, little objection can be advanced against such criteria. For instance, I grouped high-school freshmen in chorus to good advantage, but never in the use of such grouping was forgotten the fundamental fact that very probably creative musical achievement depends largely upon the general ability hereafter emphasized. Hence, in courses in musical theory, grouping was not upon the same basis as in chorus.

III. ASPECTS OF LEARNING OF MAJOR IMPORTANCE IN ABILITY GROUPING

A summary of the literature on learning is impossible, yet it seems desirable, and even necessary, to discuss certain characteristics of learning which indicate that the variable measured by mental tests is of sufficient importance in learning to justify grouping on the basis of that variable.

1. The Nature of Insight

One of the outstanding recent trends in psychology and in education is the prominence given to 'insight.' True enough, Peterson¹ dismisses the term as meaningless, as merely descriptive. Yet such dismissal need not be final for education. Insight, 'seeing into,' 'hypothesis,' and similar terms were known long before the *Gestalt* school or organ-

¹ Joseph Peterson. "Aspects of learning." *Psychological Review*, 42: January, 1935, 1-27.

istic school attracted attention, but it must be said that these schools have given it a much needed emphasis.¹ As in the case of 'maturation,' the term 'insight' has been at times greatly changed in meaning. We need to be cautious about this. I shall use it in as near the sense of 'cognizing relationships' as possible. So used, there is no implication of any mysterious directing force, power, or tension back of it.

Anyone who will survey even cursorily the literature of education and psychology must be impressed by the part that insight plays in almost all discussions of learning, problem-solving, or reasoning. I quite agree with Gates in saying that it is the culmination of the reasoning process.² I am willing to go so far with the organismic school as to say that whatever it is that happens when one cognizes relationships, or 'sees into' — in this phenomenon we have almost all of learning. I do not think the facts warrant the sweeping statements sometimes made that all learning is by insight, for I am not so sure muscular skills are so developed.

The five formal steps were after all a description of conditions facilitating, and ending in cognizing relationships. Deduction is essentially dependent upon it. To me Pavlov's treatment of the analyzing function of the brain is another recognition of the importance of insight.³ Certainly Dewey's treatment of thinking, although it employs different terms, such as evidence, inference, judgment, and so on, is a classical treatment of relational thinking, emphasizing again and again the phenomenon of seeing relations between given data.⁴

2. The Rôle of Insight in Learning

Since the rôle of insight is so important, I would put a question. Can you conceive of an educational situation that seeks to develop the 'total personality' of the child being so set up that this significant ability to see relationships — that is, to reason and to solve problems — is stifled? We have been witnessing in education lately one of the most deliciously ironical tragedies education has as yet perpetrated. Too many propositors of educating the 'total personality' have largely eliminated from 'activity' the opportunity to develop concepts,

¹ R. H. Wheeler and F. Perkins. *Principles of Mental Development*, *passim*.

² A. I. Gates. *Psychology for Students of Education* (New York: Macmillan, 1930), p. 391.

³ I. P. Pavlov. *Conditioned Reflexes* (Trans. and ed. by G. V. Anrep, Oxford, 1927).

⁴ John Dewey. *How We Think* (Boston: D. C. Heath and Co., rev. ed., 1933).

ideas, and knowledge basic to the relational thinking pertinent to many important problems. Are we developing a well-rounded individual if we neglect his intelligence?

In considering the rôle of insight in learning, I wish to avoid if possible any absolutistic interpretation. It does not seem necessary either that we ascribe all learning to 'insight' or that 'insight' be made dependent upon some fanciful interpretation of maturation. We need only to think of insight as the cognizing of relationships between data, using data in a fairly broad sense, to include objects, ideas, relationships already cognized, feeling tones, and so on. I think certain cautions are in order before we proceed further. We need to recognize certain major categories of learning in order that our concept may not bog down. While granting that "the whole problem of learning is in confusion,"¹ we are nevertheless under the necessity of making application of what is known to education. I think we can recognize at least two broad aspects of learning, problem-solving and fixation. I doubt if there is any neural, statistical, or other evidence greatly opposed to this. Some may wish to make a separate category for motor learning.

In the main, however, we must limit our discussion to that important aspect of learning that involves the seeing of relations in some degree or manner. This would include not only what we ordinarily think of as problem-solving (as in arithmetical reasoning or as in geography or social science where the pupil starts out to find the answer to some problem), but also the acquirement of meaning as when a given word first acquires meaning. As the concept takes on further meaning, new relations are cognized; or rather we should say the concept or idea takes on further meaning as new relations are cognized.²

Now it should be apparent that if the school is interested in developing the powers of the growing individual with any idea at all of direction, it cannot possibly ignore its obligations to provide a learning situation permitting utilization of this ability to see relations. And this utilization should be as nearly maximal as possible. Obviously there are two major factors that must be attended to if children are to develop in this way.

First, the curriculum, or subject content, must offer continuously the opportunity to grow, through utilizing this power to see relations;

¹ K. S. Lashley. *Brain Mechanisms and Intelligence* (Chicago: University of Chicago Press, 1929).

² E. E. Bayles. "Limitations of the Morrison Unit." *Science Education*, 18: December, 1934.

in other words, 'insight' must be facilitated and directed. We cannot expect children to learn in a vacuum, nor for that matter, in a near-vacuum of 'activity' undirected toward subject matter through which the child can acquire those meanings and attitudes that make its developmental experience educational in a true sense.

Second, due attention must be paid to the formation of attitudes. It is not enough to consider under the topic of learning the usual knowledge outcomes, with perhaps some training in 'how to think.' The most outstanding discrepancy in our treatment of learning is the persistence in separating emotions (feeling tone) and insight.¹ Our notions about attitudes are vague, with the result that the school has done little about them. Only when we realize that in all learning both feeling tone and insight are present do we reach an understanding of attitude formation permitting a direct attack through method and subject matter.

Elsewhere I have developed in some detail illustrations of the formation of attitudes in simple learning situations. Here space permits quoting but a few summarizing sentences:²

Failure to keep clearly in mind that attitudes, prejudices, and hence, to a large extent, character, are products of a learning situation, has resulted largely from our persistence in separating the feeling tone and insightful aspect of a learning situation. But an equally fatal error has occurred in failing to recognize that any feeling tone present in any way, even though apparently not a part of the activity, is in fact an inseparable part of the total learning situation. Therefore an activity which normally is enjoyable and productive of a positive attitude may be the reverse if carried on under circumstances which produce a more intense feeling tone of an opposite or different character. This familiar example will illustrate. If a baby is given food which ordinarily it would like, in circumstances of discomfort and repression, it will develop a negative attitude toward the food.

3. Application to Ability Grouping

Such an interpretation has great import for ability grouping. For when it is seen that attitudes, or a balanced attitude—the so-called 'scientific attitude'—are products of a learning situation, that attitudes cannot form except with the functioning of insight, that data are always basic to insight and that feeling tones themselves are part of the

¹ A. H. Turney. "Some psychological aspects of attitudes." *Educational Administration and Supervision*, 21: 1935, 121-131.

² *Ibid.*

data, the obligations and opportunities of education fall into their true perspective. But it must be realized that not in the case of problem-solving, or in the acquirement of meaning, or in attitude formation, do children function equally.

This last point perhaps needs little emphasis. The amount of data showing individual differences in learning is enormous. We do need to emphasize, however, that our efforts to improve the learning situation would take on different direction if we realized that learning is a function largely of insight, that development cannot proceed without data and opportunity for insight to function, and that we cannot provide adequate developmental situations with the same data at the same time for children who possess widely different potentialities for insight. This applies not only to the outcome we have largely stressed in the past — information and to some extent training in reasoning — but also to attitudes.

It is not implied by this discussion that children of different abilities must never mingle: we are only facing the fact that, in those fields of mental activity known as reading, literature, mathematics, and the physical, natural, and social sciences, the major activity necessary to development is not physical but mental, and the further fact that, if each child is to develop in a maximal fashion, he can do so only if given the opportunity to apply his ability to the data of these fields.

But, it may be said, this argument leads directly to the advocacy of individual instruction. It would if pure, thorough, individual instruction were either possible or desirable — assumptions neither of which has been shown to be tenable. We can only turn, then, to the best type of grouping that we can set up compatible with our aim. Further we must face the fact that if there are fields of activity in which development occurs with a minimum of insight, grouping on a basis that purports to reveal differential potentialities for insight would not be indicated. But this may well be considered after we have discussed the nature of the variable we wish to use as a basis of grouping.

IV. THE NATURE OF THE VARIABLE MEASURED BY INTELLIGENCE TESTS ¹

We have already indicated that our search for a basis of grouping is not so much because of need for a new instrument as because of need for a new interpretation of existing instruments. So far-reaching have

¹ Compare this discussion with the point of view presented by Professor Raup in Chapter IV. — W. W. C.

been the results of what I shall now call errors of interpretation in the measurement of intelligence that we may justify a relatively extended treatment of this topic. Unless our understanding of the basis for grouping is clarified, improvement in the use of grouping cannot follow. The relation between the variable that functions so largely in learning and that which is measured by mental tests must be understood more clearly.

The looseness with which the term 'mental' is used makes difficult our approach to this question. Any behavior may be called mental in whole or in part. We can approach the problem only from a relative point of view and consider under the head of mental differences those that would be, as Thorndike expressed it in his *Measurement of Intelligence*, regarded by most people as "intellectual." But even when so delimited, differences of opinion exist with regard to the nature of mental ability. There are differences of opinion, too, regarding the relation between this ability and other traits, such as reading ability, that are certainly 'intellectual.' Before we can reach clear conclusions regarding the nature of the variable measured by mental tests, it seems necessary to sketch in the evidence from the more pertinent fields as it bears on the nature of intelligence and also on other traits.

Most theories of intelligence have been developed by specialists in some relatively narrow field, and most of them ignore the evidence from one or more contributing fields; thus we have conflicting theories arising from statistical treatment of test results that cannot all be equally tenable if the evidence from neurology is considered. And when an attempt is made to relate the statistical and the neurological evidence it sometimes happens that many data from the latter field are overlooked. One reason for this is readily seen. No one person can hope to appraise adequately all the evidence in all these fields. Hence at the outset the reader must recognize the enormous difficulties involved and may receive with caution any conclusions we make here as a result of such an attempt. We propose to bring to bear upon this problem what in our judgment seems to be the most tenable interpretation of certain contributing fields of data. They are:

1. Neurological; in particular,
 - a. Dynamic theories
 - b. Aggregation theories
 - c. Localization theories

Aphasia
Operative-experimental
2. Psychological; in particular
 - a. Psychological theories, consciously or unconsciously derived from neurological theories
 - b. Psychological statistical theories based on evidence

1. Neurological Theories

In this survey we may appear to give more attention to the neurological than to other evidence; in our judgment it is fundamental. Lashley has said "the proposition upon which there seems to be most nearly a general agreement is that the final explanation of behavior or of mental processes is to be sought in the physiological activity of the body and, in particular, in the properties of the nervous system."¹ I believe Head has emphasized the same point of view.² Certainly we feel that much light can be thrown upon the present disagreement in statistical studies of intelligence if we consider first and always the neural basis. It seems to us clearly evident that much needless confusion exists in interpreting statistical data because of failure to keep in mind such evidence as that which is reviewed here.

The neurologists in recent times, and students of anatomy, medicine, and physiology preceding the more specialized neurologists, have attempted to explain intelligence in terms of structure or functioning of structure. Preceding them, there was speculation with regard to the relationship between intelligence, or reason, and the body. Thus Anaxagoras considered that it was "wrong to suppose that reason itself is mixed with the body."³ The naïveté with which the neural basis of learning and intelligence is ignored in modern theorizing almost puts one back to this early Greek and justifies here a summary of pertinent data accumulated since his time. For this purpose I have adopted Lashley's classification of neurological theories concerned with the problem of intelligence.⁴ He thinks that there are three fairly distinct points of view; namely: (1) the dynamic theory, (2) the theory of aggregation, and (3) the theory of localization.

a. The Dynamic Theory. This theory conceived intelligent behavior as an indivisible function of the entire cerebrum. This was the point of view of Flourens who is said to have stated that "the organ of the mind, like the mind itself, was one and indivisible, there being no differentiation of function, but each part possessed of the same potentialities and capable of exercising every function pertaining to the whole."⁵ According to Lashley, this theory was held by Goltz and, more recently, by Loeb. It seems to us that certain of the workers interested in aphasia have largely concurred in this point of view, notably Marie and Head. Marie was the first to claim that every true aphasic betrayed a total reduction in intelligence. Head's own classical work⁶

¹ K. S. Lashley. "Basic neural mechanisms in behavior." *Psychological Review*, 37: 1930, 1-24.

² Sir Henry Head. *Studies in Neurology* (London: Oxford University Press), Vol. II, epilogue.

³ Benjamin Rand. *The Classical Psychologists* (Boston: Houghton Mifflin, 1912), p. 74.

⁴ K. S. Lashley. *Brain Mechanisms and Intelligence*.

⁵ William Elder. *Aphasia and the Cerebral Speech Mechanism* (H. K. Lewis, 1897).

⁶ Sir Henry Head. *Aphasia and Kindred Disorders of Speech* (New York: Macmillan, 1926), Ch. I.

supports this view very definitely, yet the significance of this evidence has been almost entirely ignored in the field of mental testing and speech disorders.

b. The Theory of Aggregation. This theory is that intelligence is the product of ideas arising from sense perceptions in various sensory spheres. Lashley quotes Munk: "I considered the whole cerebral cortex, an aggregate of all the sensory spheres, to be the seat of the intelligence, which I defined as the combination and product of all the ideas arising from the sense perceptions." Apparently this theory held that images and ideas resulting from sense perceptions were stored in each of the spheres and that integration of them was made possible by intercommunication between these spheres. Here we have a supposed basis for faculty psychology and the 'averaging' method in mental testing.

c. Theories of Localization. Neural theories of intelligence are closely interwoven with theories of localization, aphasia and kindred disorders, and the physiology of speech. Collins¹ dates the history of aphasia from 1861, but Broca's discovery, which occurred at this time, was not startling; Head says that the "air was full of localization." In fact, some sort of localization theory was prevalent during the Middle Ages. Then, in 1807, Gall had suggested that the brain was made up of organs. It is well to note that many physicians of that period, though they rejected phrenology, accepted the concept of cerebral localization.

About the time of Broca's discovery numerous cases of aphasia were reported. Although not all students of aphasia were believers in the current theories of localization, their reports served as a basis for differentiating so-called 'types of aphasia' and for believing that speech disorders were affections of more or less independent brain centers. About this time Fritz, Hitzig, and others were experimenting with animals. It is not surprising, therefore, that in spite of the warnings of such men as Hughlings Jackson, the diagrammatic conception of brain function became established, culminating in such elaborate schemes as those of Bastian and Maudsley, Kusmaul, and many others.² So far as I know, the most extreme adherent of localization was Henschen, who is reported by Head to have stated that "every cell or cell complex is endowed by education with special capacity to receive, store up, and then to compare visual, auditory, and tactile images . . . with new impressions."

It is significant that this statement expressed an extreme interpretation of cerebral localization that had been developing for years as a result of misinterpretations of cerebral functions in aphasia and other types of brain lesions (as we shall see later). In this untenable concept we have an imaginary neural basis for the specific-bond theory that for years dominated our thinking in education, and for such notions as that 'intelligence' is an aggregate of a multitude of 'c's.' For more than three quarters of a century this concept has been criticised and in recent years so thoroughly discredited that

¹ Joseph Collins. *The Genesis and Dissolution of the Faculty of Speech* (New York: Macmillan, 1898).

² Head, *op. cit.* See also, for example, Lichtheim's diagram in James Ross' *On Aphasia* (London: J. A. Churchill, 1887).

to-day it is the least tenable of all neural concepts of brain functioning, a fact that education has blithely ignored.

The development of this concept of extreme localization did not occur without opposition. From Hughlings Jackson and Marie, and later from Head's classical work, there was plenty of warning. In time the facts were faced that if one can draw any conclusion at all from the voluminous work on aphasia, it is that every true aphasic shows a diminution of 'general intelligence' and that a cortical lesion producing aphasia interferes with some central mechanism acting in a general way.

The evidence from the operative-experimental studies is by no means conclusive. Yet trends in interpretation are evident. The early work of Franz and Lashley¹ was interpreted as indicating equipotentiality of cortical tissue, and rather extreme interpretations of mass action resulted in some quarters. Cameron's study² gave indications quite contrary to Lashley's early results. Lashley's studies have continued and have been frequently reported. In his *Brain Mechanism and Intelligence* he presents data that indicate some general dynamic function, yet at the same time do not rule out gross areas of localization and, in the case of the visual cortex, fairly specific areas. The work of Wiley³ and Maier⁴ also supports the idea of areas of special function as well as some dynamic function, for their data, as do Lashley's and Cameron's, show some relation between amounts of tissue destroyed and either original learning or relearning. It is plain that no such sketch as this can do justice to this voluminous work. Lashley himself has seemed to vary in his interpretations. His 1930 review⁵ is much more cautious than his 1929 volume.⁶ His presidential address⁷ of 1930 indicated a fairly decisive belief in a dynamic functioning of the brain. Lashley and Hines⁸ have considered both operative-experimental evidence and the data from aphasia. Horrax⁹ deals largely with the latter only.

d. *Summary.* Without attempting to be presumptive, we would summarize tentatively the conclusions from this conflicting and huge mass of data as follows:

¹ S. I. Franz and K. S. Lashley. "The retention of habits by the rat after destruction of the frontal portion of the cerebrum." *Psycho-Biology*, 1: 1917, 3-18.

² Norman Cameron. *Cerebral Destruction in Its Relation to Maze Learning* (Psychological Monographs, 39: 1928, No. 77).

³ L. E. Wiley. "The function of the brain in audition." *Journal of Comparative Neurology*, 54: Feb., 1932, 109-142.

⁴ Norman R. Maier. "The effect of cerebral destruction on reasoning and learning in rats." *Journal of Comparative Neurology*, 54: Feb. 15, 1932, 45-76.

⁵ K. S. Lashley. "Integrative function of the cerebral cortex." *Physiological Review*, 13: January, 1930, 1-42.

⁶ *Brain Mechanisms and Intelligence.*

⁷ K. S. Lashley. "Basic neural mechanisms in behavior." *Psychological Review*, 37: 1930, 1-24.

⁸ Marion Hines. "On cerebral localization." *Physiological Review*, 9: 1929, 462-574. (This is the most complete and critical review that I know of in English.)

⁹ Gilbert Horrax. "Contributions of the war to the physiology of the nervous system." *Physiological Review*, 1: April, 1921, 269-294.

- (1) Equipotentiality does not exist.
- (2) There is a division of labor in the brain varying from fairly specific localization in the visual cortex to broadly localized areas in other parts.
- (3) There is some kind of dynamic functioning, seemingly of a unitary nature, apparently stable as to its quantitative aspect.

From the various neurological theories just presented have developed various psychological theories; our discussion of the former has largely anticipated our criticisms of the latter.

2. Psychological Theories

a. Derived from Neurological Theories. One can find theories of intelligence and learning that imply something over and above the physiological substratum of behavior, as for example, the theory of Anaxagoras; one can find other theories that purport to recognize neurological structure and function. We accept in our consideration the position of Lashley,¹ that science can concern itself only with the latter. The aggregation theory may be regarded as midway between the other two neurological theories, and the corresponding psychological theories may be located on a scale ranging from extreme localization to extreme dynamic, or mass-action, functioning. It should be noted that theories of localization are themselves thus roughly scalable.

(Psychological)	specific	faculty	dynamic
(Neurological)	localization	aggregation	mass action

There seems to be observable already some tendency to carry interpretations of mass action far beyond known facts and to ignore divisions of labor within the uninsulated cerebrum.

Psychological theories of intelligence and learning may be roughly classified into (1) specific, or near-specific, bond theories; (2) faculty psychology; and (3) theories purporting to be dynamic, or to emphasize some similar, though poorly expressed, notion of the 'total personality.' Unless one wishes to ignore the neural bases of learning and intelligence, the first of these is almost entirely untenable. Faculty psychology, *per se*, has no neural bases except in regard to division of labor within the cortex, which after all gives little basis for faculties as they have been presented in the literature. The best single statement that I have seen again comes from Lashley: "On the whole, the psychological evidence seems to favor the existence of some single variable like Spearman's 'g' in addition to special abilities."²

b. Derived from Test Statistics. In the category of psychological theories one may include the theoretical interpretations built up as a result of statistical treatment of test results. It is not surprising that these theories should vary since so much confusion exists in the interpretations of neurological functions basic to the data. The statistical evidence is newer as a whole, and it is at least fair to say that many times conclusions are drawn that fail to keep in mind the nature of the original data.

¹ *Brain Mechanisms and Intelligence.*

² *Ibid.*

There exists no adequate summary of the statistical evidence comparable to, for example, Hines' brilliant survey of the literature on cerebral localization. We may note Brolyer's discussion¹ in which he shows great skepticism regarding conclusions drawn from statistical treatment.

Following Spearman's notable paper in 1904, he and his pupils continued for more than two decades to work consistently on research designed to throw light upon his theory of a general factor. In his two volumes appearing in 1922² and 1927³ he presented the results of these efforts with regard to both quantitative studies and theory. For our purposes it may be said here that his two-factor theory conceives of first, a general factor common to the mental activities represented by the current mental tests, and second, various specific factors.

As already intimated, there have been many critics of the theory of a general factor, 'g.' Among them are Kelley, Tryon, Thurstone, Thorndike, and Pintner. Pintner's criticism, appearing in his revised textbook,⁴ is an attempt at dismissal rather than argument and it is to be noted that his acceptance of a multiple factor, 'c,' may be interpreted as a continuance of the specific-bond concept, having for its neural basis the least tenable of all concepts of cerebral functioning. The same may be said of Thorndike's position.⁵ Holzinger's dissension⁶ may be mentioned as a pertinent criticism of some of Thorndike's discussion. In it Holzinger makes clear what seems to us a very general error in interpreting many of the so-called 'special abilities' as broad factors. Kelley's position⁷ in our judgment is not basically contradictory to Spearman's point of view.⁸ Tryon's⁹ and Thurstone's¹⁰ criticisms are, to me at least, more difficult to interpret. Spearman¹¹ has offered his own defense in regard to many criticisms of his theory.

¹ C. R. Brolyer. "Aptitudes or factors discovered or invented." *Report of Conference on Individual Differences in Special and General Abilities at New Haven* (Washington, D. C.: National Research Council, May 16, 1931).

² C. Spearman. *The Nature of Intelligence and Principles of Cognition* (New York: Macmillan, 1923).

³ C. Spearman. *The Abilities of Man* (New York: Macmillan, 1927).

⁴ R. Pintner. *Intelligence Testing* (New York: Holt, 1923).

⁵ E. L. Thorndike. *Op. cit.*

⁶ Karl Holzinger. *Conference on Individual Psychology Differences* (Washington, D. C.: National Research Council, May 9-10), Appendix A, p. 3.

⁷ T. L. Kelley. *Crossroads in the Mind of Man* (Stanford Univ.: Stanford Univ. Press, 1920).

⁸ Karl Holzinger. "Tetrad differences with overlapping variables." *Journal of Educational Psychology*, 20: 1929, 91-97; also W. Line. "Three recent attacks on associationism." *Journal of General Psychology*, 5: 1931, 495-513.

⁹ R. C. Tryon. "Multiple factors vs. two factors as determiners of abilities." *Psychological Review*, 39: 1932, 324-351; also "So-called group factors as determiners of ability." *Loc. cit.*, 403-439.

¹⁰ L. L. Thurstone. "The vectors of mind." *Psychological Review*, 41: Jan., 1934, 1-32.

¹¹ C. Spearman. (1) "The factor theory and its troubles." *Journal of Edu-*

Tryon, while purporting to be concerned with the "facts of psychology and biology," attempts to justify statistically a concept certainly not in agreement with the majority of the neurological evidence. Thurstone would make verbal facility a broader factor than 'g.' How verbal facility, other than mere parroting, could exist without the functioning of insight in the establishment of vocabulary meaning and sentence relationships is hard to understand. The issue is largely a statistical one. If the formulas used by these critics are weightier evidence than the facts of neurology and observed phenomena in learning, their criticisms may be valid; if not, the statistical data that harmonize with these facts and with observed phenomena should be most valid.

It must not be assumed that all, or even most, statistical reports are opposed to Spearman's theory. Holzinger's work is definitely in agreement. So also would appear to be Asher's¹ and Findley's,² and of course a considerable volume of material from Spearman's own students.

It seems that any attempt to set up a theory of intelligence on the basis of statistical evidence alone is inadequate at present, but if we bring to bear the neurological evidence briefly summarized above, the evidence in favor of interpreting 'intelligence' in terms of a general factor becomes far more impressive. Much confusion has resulted from failure to keep clearly in mind that any such general function of the cerebrum must have varied external manifestations.

Before considering here the nature of 'g' as presented in the literature of psychology, it is well to glance briefly at some of the interpretations to be found in the neurological literature. In this connection we may mention Head's concept of 'vigilance,' Adrian's and C. S. Myer's discussion of 'nervous and mental energy.'³ But these do not stand alone. Head's discussion in his *Studies in Neurology* adds weight to the position that we are justified in accepting some concept of mental energy — not in terms of electrical and thermal units

cational Psychology, 24: 1932, 521-524, 591-601. (2) "What the theory of factors is not." *Journal of Educational Psychology*, 22: Feb., 1931, 112-117. (3) "Our need of some science in place of the word 'intelligence.'" *Journal of Educational Psychology*, 22: 1931, 401-409.

¹ E. J. Asher. "The predictive value of mental tests that satisfy Spearman's tetrad criterion." *Journal of Applied Psychology*, 13: 1929, 152-166.

² Warren G. Findley. *Specialization of Verbal Facility at the College Entrance Level* (New York: Teachers College Contributions to Education, No. 567, 1933).

³ Henry Head, E. D. Adrian, and C. S. Myers, "The conception of nervous and mental energy." *British Journal of Psychology*, 14: Oct., 1923, 121-125, 126-147, 148-152.

but regarding these latter as merely lower-term descriptions of the former.

We must face the fact that human behavior has a structural basis. This structure functions physiologically; the physiological functioning of the cortex eventuates in external manifestations; the end-product is meanings, ideas, concepts, and relations seen between them — this as the organism interacts with its environment. By means of a standardized instrument we approximate indirectly an estimate of individual differences in potential ability to see relationships that may be thought of as 'mental energy,' or 'g' and that is revealed through measurement of its past application to an unstressed milieu — which is mental age. Knowing this early in his life, we have the best index yet developed for estimating what a given child can do. It offers us our one dependable instrument for scrutinizing the effectiveness of our school environment (the curriculum and the method).

Lest this hasty survey be charged with summarily dismissing such observed phenomena as the immediate learning of a specific fear or of given facts in multitude that remain seemingly fixed over long periods of time — thus lending plausibility to the familiar, but now dishonored, specific-bond concept — let us interpose the suggestion that the reconciliation between the ideas of a general factor and of specific learning such as these should best follow after a brief consideration of some typical learned products.

V. TRAIT DIFFERENCES AS LEARNED OUTCOMES

Here we shall consider certain misinterpretations of the nature of the outcomes of learning. Take the assumption that the achievement of a pupil in arithmetic, as contrasted with his achievement in geography or in language, represents a distinct trait. By statistical treatment, such differences in achievement are frequently shown to be marked, and in some cases, because of statistical reliability of differences, it has been assumed that there is nothing common in the abilities under measurement. The problem here raised is of importance to those interested in ability grouping for two reasons. First, the assumption that such traits as ability to read or to solve problems in arithmetic are special abilities, rather than the result of the application of a general ability to a limited environment, has led to the use of measures of these traits as bases for grouping. Second, this assumption leads to mistaken interpretations of overlapping in achievement of groups formed on the basis of mental ability.

So imposing have become statistical analyses of individual differences and so much neglected is the neurological basis of learning that the former have attained credence possibly beyond their deserts. It may easily be seen that if all, or nearly all, learning that involves meaning and problem-solving is by insight, or seeing relations, then certainly one should be skeptical of any data indicating complete discreteness in such learned outcomes. When one considers in this connection that the neurological evidence, incomplete and contradictory though it is, points definitely toward a general factor, the acceptance of the notion of distinct traits must wait upon greater evidence regarding their nature.

A better definition of special ability is needed. We shall limit the term to mean an ability or aspect of behavior that is fixed, or largely so, by structural limitations. So limited, we could accept, for example, discrimination of pitch as a special ability. Now, insight is also limited by structural conditions, and individual differences in ability to cognize relations may be ascribable to quantitative or qualitative conditions in the cerebrum. But arithmetic (exclusive of mere reproduction), reading, achievement in geography, and similar accomplishments are largely the products of the application of 'g' to these various restricted environments. To that extent they are certainly not special. To the extent that there is involved in each of them something more than 'g,' they are special. Neurologically, one may say that environmental adjustment is dependent upon the dynamic functioning of the cortex, and the end products — meaning, vocabulary, knowledge, problem-solving — are general. To the degree that these adjustments are dependent upon other aspects of neural functioning, they are special.

We have already suggested that achievement in different school subjects is not equally dependent upon 'g.' Spearman's work seems to indicate this. The most important consideration is that the teacher may make success in school subjects more or less dependent upon insight. If we stress drill, certainly insight is not a major factor.¹ If content is meager, with relations few, simple, and adjusted to dull children, certainly the average and bright cannot employ their ability to see relations to advantage.

Considerable confusion in understanding special abilities has re-

¹ McQuilkin DeGrance. "Statisticians, dull children, and psychologists." *Educational Administration and Supervision*, 17: 1931, 561-573; also A. H. Turney. "The concept of validity in mental and achievement testing." *Journal of Educational Psychology*, 25: Feb., 1934, 81-95.

sulted from the use of certain terms like 'age' and 'verbal facility.' We ought to realize that mere ageness has no value in connection with intelligent behavior; the pyramids have not accumulated intelligence with the passage of years. Age, or maturity, must always be referred to the development of nerve structure and its consequent increased potentiality for functioning. With respect to 'verbal facility,' I confess I am astounded at what seems to be an attempt to dissociate it from 'insight.' Surely verbal facility is dependent upon word meanings and upon organizations, both dependent originally upon insight, unless we conceive of verbal facility as parrot-like repetition.

I may seem to be making too much of this point. However, from the standpoint of educational theory and application it seems very important what explanation we make of inconsistencies in achievement in different school subjects. Whether we ascribe achievement in subjects like arithmetic and literature to special abilities or to differences in motivation and in opportunity to use the individual's ability makes a vast deal of difference. The latter interpretation throws a different light upon the whole educational environment. We need to know the relative importance of insight in various school subject-matter fields, and we need to provide the best possible opportunity for the functioning of insight in these fields.

To summarize, then, our thesis is this:

Success in most school subject matter (exclusive of skills and mere repetition), if these subjects are taught in a truly developmental fashion, is dependent in the main not on special abilities but upon a general ability (the basis of insight). But these subjects cannot conceivably be presented in a truly developmental fashion to all levels of ability simultaneously. Therefore, grouping on the basis of a measurement of the general ability 'g' must offer the best opportunity for truly developmental presentation.

In connection with the so-called 'trait differences' other misunderstandings arise. After ability grouping is done, it has been found that overlapping in certain traits is so great that it apparently invalidates the grouping; that is to say, when the XYZ groups, formed on the basis of mental age, show great overlapping in reading, arithmetic, or spelling, the grouping is judged valueless. The implication of such criticism is that the lowest of the high group should exceed the highest of the next group; in other words, a perfect positive correlation is expected. But such a plus-one correlation between measures of the variable on which grouping is made and the resultant achievement in any subject-

matter field could result only under certain conditions; namely, (1) the basis for grouping would have to be a perfect measure of the variable 'g'; (2) the field of study or, rather, attainment in it would have to involve nothing but 'g'; (3) motivation of each individual would have to be maximal with respect to the functioning of 'g' in that field. Not one of these conditions is obtainable in practice. Neither M.A., nor I.Q., nor both in combination will represent a perfect measure of 'g.' If the tests are constructed properly¹ and if both I.Q. and mental age are used, they probably do afford a close approximation to individual differences in 'g.' Probably no mental activity is purely a function of 'g'; certainly no subject-matter field in the grades or in the high school would be one. Some subjects, *e.g.*, spelling, undoubtedly involve only small amounts of 'g.' Finally, we know that motivation almost certainly is never maximal with respect to the utilization of 'g.'²

But these are not the only considerations that must be kept in mind in evaluating the so-called 'trait differences' in respect to grouping. One of the major errors in attempting to understand the problem arises from the fact that most of our studies of the relation between mental ability and achievement in subject-matter fields are limited to single grades. What we need most of all to know is the part that intelligence, or insight, or whatever we may deign to name the psychological end product of the functioning of 'g,' plays in the total development of the child.³ Furthermore, sectioning a fifth or sixth grade for a year or six months and calculating correlations or differences between the means at the end of that period represents only a fragmentary attack upon the problem. Only after we have experimented with ability grouping under such conditions that each group and each member in the group is provided with adequate opportunity for developing in the various subject-matter fields under as nearly maximal conditions of motivation *for the entire elementary-school and high-school period*, can we draw valid conclusions with respect to the overlapping of the *initial* groups.

¹ E. J. Asher. *Loc. cit.*

² Many studies have pointed to this; see, for example, Turney and Fleming.

³ I have a correlation of .85 between mental age and reading ability as measured by Sangren-Woody in Grades III-VIII, inclusive.

VI. CHARACTER AND PERSONALITY TRAITS

Certain other traits of personality and character, not heretofore mentioned in this chapter, may be considered in connection with ability grouping. Traits whose development may be favored by the grouping we propose are attitudes, interests, industry, perseverance, coöperation, and the like.

We have already touched upon attitudes when discussing learning. We need only add here that much of the school's effort at character building is a matter of attitude formation. If attitudes are amenable to direction and change only through data, as we have suggested, the advantages of grouping are fairly obvious.

In our judgment, interest is a positive attitude. An activity that ordinarily may be pleasant and enjoyable may be carried on in a situation involving unpleasant feeling. Feeling tones are a part of the total learning situation and, if unpleasant, leave a negative attitude.¹ To expect children of widely different ability to study and work together in the major school activities and be interested in them seems to us fairly naïve.² Nor can true intellectual interest be developed and maintained unless the child's ability is challenged and given subject matter for its activity. If children are grouped according to the indicated basis, we can come much nearer adjusting subject matter to the child's degree of development without lessening its challenge.

Such traits as industry, perseverance, and coöperation should also be considered. It seems to us that one of the neglected aspects of complete development is the habit of application, or industry. If we are really sincere in our insistence that we want to educate 'the whole child,' how can we commit some of the errors we do? Because a given activity is pleasing and the children are happy in it does not mean that it is developing the child effectively. All development must have a direction. Unless we can envisage the child as spending his life playing ball, building bird houses or painting tulips, we must think of this development in terms of some goal, some direction. We are not only under the obligation of making it possible for him to use his intelligence at least occasionally in a maximal way, but we should endeavor to build in the child *habits* of doing so. Moreover, we must go beyond this and see that these habits of study, through which the child will be able to 'learn' much more, are exercised in subject matter that is

¹ A. H. Turney. "Some psychological aspects of attitudes." *Loc. cit.*

² Turney and Hyde. "Attitudes of junior-high-school pupils." *Loc. cit.*

genuine and real, in order that the school shall play its part in building attitudes that are desirable and that will actually function in the child's later life. Since this is our aim, we cannot depend upon the mechanism of transfer to carry over the mild attitudes of coöperation and tolerance from innocuous school situations to the tense and complicated situations in life.

If we attempted to supply the content that would permit the free development possible by the maximal functioning of mental ability, we should have to abandon our emotionally charged interpretations now dictating subject matter and method. There is no possibility whatever that two children differing widely in their innate ability can develop habits of industry and application in subject matter that permits each to develop maximally and continuously and do this together. They might do it in the same room, possibly under the same teacher, but not with the same subject matter operated upon simultaneously.

VII. ASPECTS OF ACHIEVEMENT TESTING PERTINENT TO ABILITY GROUPING

Having in mind the major purpose of ability grouping—its value in promoting utilization of mental ability and the necessity for providing subject matter that permits such utilization—we can approach the question of measurement more intelligently. Any testing that is expected to reveal differential application of 'g' to any field must be based upon a curriculum (or subject matter) that requires the use of this variable for successful achievement in it presented in such a way that the ablest can progress as continuously as the least able.

When we come to test for differential application of mental ability to such a field, the test must be so constructed as to reveal it. Such a test, if it contains items reflecting acquirement of meaning in this field (facts, concepts, definitions), must mirror a broad content. If it contains items reflecting problem-solving, these items must range in difficulty sufficiently to permit all ranges of ability to function.¹

In studying experiments concerned with ability grouping, I have been amazed at the great care taken to "keep materials and methods constant" and apparently also to use tests more applicable to the lowest group than to the full range of ability. The astounding thing is that, in spite of all efforts to prevent it, upper groups often show better achievement when sectioned.²

¹ A. H. Turney. "The concept of validity, etc."

² A. H. Turney. "Status of ability grouping, etc."

VIII. THE BASES OF GROUPING

1. Tenable Conclusions

The foregoing analysis points to certain conclusions as being the most tenable that can be derived from the conflicting evidence in the fields considered. They are:

1. The neurological evidence supports the hypothesis that in cerebral functioning there is some dynamic functioning of the brain, especially evident in the so-called 'higher' activities. At the same time the neurological evidence does not permit the assumption of equipotentiality, neither does it permit the assumption that there is no division of labor in the cortex or in the central nervous system.

2. The psychological theories, with the possible exception of some of statistical derivation, are reflections of the neurological and their validity depends in part upon the extent to which they agree with the neurological evidence. Hence psychological theories postulating a multitude of specific factors reflect the least tenable of all backgrounds.

3. The statistically derived theories show considerable conflict. Considering the statistical evidence alone, one could perhaps support Spearman's theory as the most tenable; when one considers also that both the general factor and perhaps some specific factors come closest to agreeing with the consensus of neurological interpretation, it seems clear that this is the most plausible interpretation yet developed.

4. It should be emphasized, however, that no part of the evidence herein considered, or all of it, gives to any conclusion a validity that justifies any degree of finality. To build a system around such a concept as we are here accepting (solely because in our judgment the data implies it to be the most plausible), would be unwarranted in the highest degree.

2. Application to Practices of Grouping

Our problem now is to indicate how to apply these conclusions so as to improve present conditions.

The following types of ability grouping have been used:

1. Ordinary grade divisions, in so far as ability to learn improves with age and correlates with grade.
2. "Homogeneous" grouping, or ability groups within grade. Dividing the class into sections on the basis of ability to learn. The sections supposed to be more homogeneous than the larger group from which they are made.
3. Special classes or institutions for feeble-minded.
4. Opportunity rooms for gifted or bright.
5. Ungraded rooms — theoretically for dull children or restoration cases.

6. Teachers' subjective grouping within a class.
7. Entrance requirements of various sorts, *e.g.*, admit to kindergarten under five years if mental age is five or over.
8. Mutual aid groups.
9. Subject groups.
10. Grouping for specialized activities, such as physical education, music, art, etc.

For activities included in Type 10 we have no intention of advocating grouping on the basis of mental ability, though there may be conditions when mental ability could profitably be considered in connection with this category, for example, in genuinely constructive aspects of music and art. First-rate composition in music and art must be correlated with mental ability.¹

The school must provide some situations in which mingling of various levels of ability and maturity may occur. The homeroom and some extracurricular activities can easily provide these. But we are not justified in assuming that adequate and complete guidance of the development of children in the major activity of the school can be given in large groups with wide ranges of ability.

For the first five forms of grouping, and largely for the seventh, eighth, and ninth, the criterion of mental ability is, in our judgment, fundamental. Of course, flexibility must be conserved, so that the few distinctly non-typical members of each group may receive special treatment. Thus a pupil placed by our fundamental criterion in a low section, but who is doing definitely superior work, may well be reassigned to some other section. But the original data should always be retained, in order that the school may be ready to prevent the development of an attitude of inferiority when the child reaches a level of work too difficult for him. *The outstanding error made in the interpretation of ability grouping is the failure to realize that, if the curriculum permitted full use of mental ability and motivation were maximal, low sections would seldom, if ever, appreciably overlap higher sections.*

Let us emphasize here that, if our purpose were merely prediction, our best procedure would be to include in our bases of grouping the best measure of mental ability and the best index of the intensity of its application in the past, to fields similar to those in which prediction is desired. Practically, this would mean some index of mental

¹ Cf. C. Spearman. *Creative Mind* (New York: D. Appleton-Century, 1931).

ability and some index of past achievement. If, on the other hand, our purpose is to provide an educational situation permitting maximal development of the sort forecast in the preceding argument, our procedure is to use the best index of mental ability available. If age were constant, the best index of individual differences in 'g' would be either the personal constant or the mental age. With age not constant and with the personal constant almost unknown to the rank and file of teachers, the best we can do is to use a combination of M.A. and I.Q. and make adjustments from time to time in the mental-age part of the combination.

It will immediately be objected that there are "other factors." Yes, of course there are, but as our discussion has already hinted, ability grouping is practically limited to those school activities that involve mental activity requiring relational thinking, acquirement of meaning, problem-solving, and the like. Heterogeneous grouping is not at all times desirable even in some of the so-called extracurricular activities if we wish to provide for adequate and effective use of mental ability. Hence, as a practical matter, we would limit the fundamental base to the two indexes M.A. and I.Q. A word should be entered here to indicate certain practices that in our judgment would be desirable:

First, the test ought to be constructed to accord with the only genuine criterion of validity that has as yet been developed; namely, the tetrad equation.

Second, the personal constant is theoretically, and also, according to the majority of experimental evidence so far produced, practically superior to the I.Q. and should be substituted for the I.Q. as rapidly as possible.

Third, until further progress in test construction is made, the testing, group testing especially, should be carried out between the ages of eight and fourteen. We think it desirable that personal constants or I.Q.'s be derived from three tests using the median of the three. Corrections in mental age can be made at regular intervals subsequently without retesting. Especially at the present time indexes like the I.Q. or P.C. or mental ages derived from them that are based on tests given after the age of fourteen are more likely to lead to error and misinterpretation than those derived from tests given earlier.

Of course not every school can use three tests, and we do not mean to imply that a great deal of error need be involved if only one test is used. A few studies of a practical import have been made showing the relative value (not validity) of certain tests. I refer to the studies of Sangren¹ and Turney

¹ Paul V. Sangren. "Comparative validity of primary intelligence tests." *Journal of Applied Psychology*, 13: 1929, 394-412.

and Fee.¹ It is desirable to point out, however, that in view of the findings of Miller,² no loss in economy need follow the use of three tests.

We classified the beginning seventh-grade pupils in the Lawrence Junior High School for the fall of 1933. During the fall of 1935 the same group was reclassified for the beginning ninth grade, using the original I.Q.'s and correcting mental ages from them, without additional testing. We have found this practice more desirable than giving a single test for the seventh grade and retesting for the eighth- and ninth-grade classification. It may be added that the justification of using three tests is mainly for increasing accuracy of measurement for extreme cases.

Our procedure for the 1935 classification of the beginning seventh-grade pupils was briefly the following: ³ All sixth-grade pupils were given the Terman Group Test of Mental Ability, Form A; Haggerty Delta Two; and the Kuhlman-Anderson Test for Grades VII and VIII before the close of the preceding school year. The tests were scored by teachers. The scores were then rechecked under the writer's supervision and the I.Q.'s calculated. Using the technique explained by Miller,⁴ the I.Q.'s were transmuted into Terman Equivalents. Using the median of the three corrected I.Q.'s, a new mental age was calculated. The median I.Q. and corrected mental ages were plotted as shown in Figure I. The seven sections were formed as shown in the chart. These data are sufficiently reliable and valid to serve for the entire junior-high-school tenure by simply adjusting the mental ages and redividing the sections. There are, of course, many variations possible in making the sections.

It will be immediately suggested that this is the same old story — classifying by mental tests. Not quite. In the first place much of the criticism of mental tests as a basis of grouping arose from the use of either I.Q. or M.A. alone, with age not constant. In the second place, much naïve criticism has followed the 'discovery' that, for example, the Miller A gives much different I.Q.'s from Terman A. Both these errors are corrected in this technique.

But more especially we avoid the mixture of mental ability and motivation in the process and bring into bold relief all discrepancies between ability and achievement. The actual sectioning is but a minor part of ability grouping; the real job rests with the *teachers*. To adjust subject matter so that a child *can* use his mental ability, and to adjust

¹ Turney and Fee. "The comparative value for junior high school use of five group mental tests." *Journal of Educational Psychology*, 24: May, 1933, 371-379.

² W. S. Miller, "Variation of I.Q.'s obtained from group tests." *Journal of Educational Psychology*, 24: Sept., 1933, 468-474.

³ This technique is fully set forth in an unpublished manuscript by Miller and Turney, *The Mental Measurement of School Children*.

⁴ W. S. Miller. "The variation and significance of intelligence quotients obtained from group tests." *Journal of Educational Psychology*, 15: 1924, 359-366.

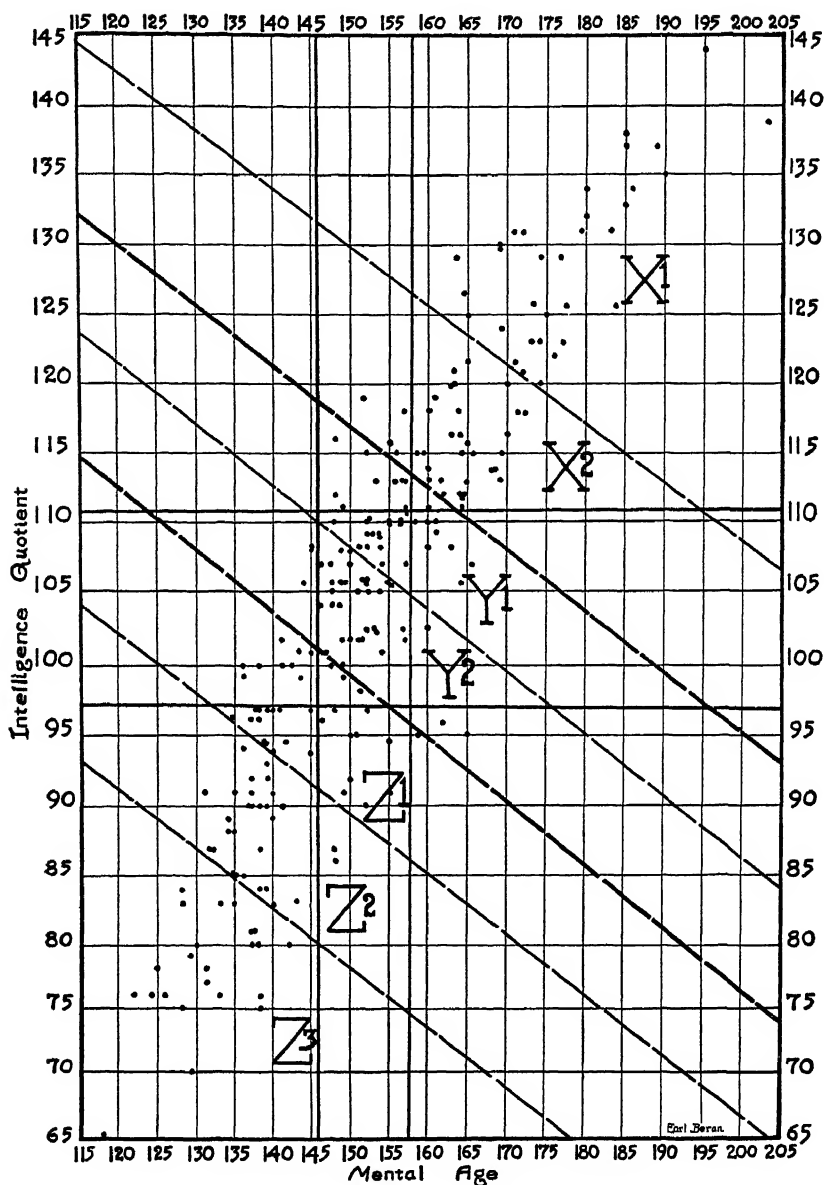


FIGURE I. — THE CLASSIFICATION OF JUNIOR-HIGH-SCHOOL PUPILS AT LAWRENCE, KANSAS, INTO SEVEN SECTIONS ON THE BASIS OF MENTAL AGE AND INTELLIGENCE QUOTIENT

method so that he *will* use it—these are the outstanding problems, for it is idle to talk of effective development unless children can and do use their mental ability. Teachers must be permitted an opportunity not only to make adjustments of subject matter and method but also to know why—that is the purpose of facilitating the use of the most priceless of all human traits, the ability to see relations, to learn.

Failure to observe these precautions will be revealed by lower correlations between mental ability and achievement (for the entire original range) and greater overlapping of achievement. We cannot reduce the overlapping consequent to ability grouping on this base if the subject matter will not permit it or if the subject matter and method work against the will to do so. Our subject matter must offer opportunity for sustained and profitable application. It is idle to expect trait differences of less-heterogeneous groups not to overlap unless the ablest has as much opportunity to develop as the least able, and unless his motivation is as great. Even if these two conditions are met, we may yet fail to detect it with inadequate measuring instruments.

The problem of testing for differential application of mental ability following grouping cannot therefore be separated from that of curriculum adjustment. The main points to consider before achievement testing can have any meaning in relation to ability grouping are:

1. The subject matter must be of such quality that mental ability (or 'g') is required for achievement in it.
2. The subject matter must be so selected and so presented that each pupil can develop continuously and maximally in it.
3. Tests of achievement in the field must contain items of such nature and quantity that the ablest may demonstrate what he has achieved in this field.

CHAPTER VII

THE RELATION OF THE NEWER EDUCATIONAL PRACTICES TO GROUPING

H. B. ALBERTY
Professor of Education
and
O. G. BRIM
Professor of Education
Ohio State University, Columbus, Ohio

I. THE PHILOSOPHY INVOLVED IN NEWER EDUCATIONAL MOVEMENTS

1. Introduction

The evaluation of any educational practice must ultimately be made in terms of some system of values. One practice cannot be compared with another except as a means of achieving a value that is explicitly stated or assumed. To answer the question implied in the heading of this chapter adequately, then, necessitates the statement of the philosophy, or the educational values, used as a basis of judgment.

Since the 'newer movements,' which, with ability grouping, are to be the center of study, spring in the main from the philosophy known as 'progressive' education, one might conclude that the values underlying the newer movements might be taken for granted and the discussion proceed at once to the study of the nature of the relations indicated by the chapter heading. There is, however, such a variety of interpretations, oftentimes indeed amounting to definite conflicts, in concepts held by different expositors of the newer movements in education that it seems best to state the position held by the authors and used as the basis of this discussion. Brevity is, of course, necessary. By what criteria, then, shall educational practice be judged?

2. The Changing Nature of Man's Universe

Basic to our educational philosophy is the fact that this is a changing universe. Conditions with which one must deal change from generation to generation, from year to year, from day to day, and, to some extent, from moment to moment. There is no pattern of effective living that can be discovered and transmitted. Effective living is a creative

process. Man must discover the nature of each situation, determine its differing aspects, modify them when he can, adjust himself when he must. Effective living is a product of intelligence, not mechanical habit. Habits one must have, but these must be meaningful, flexible, constantly under the control of intelligence, and subject at all times to modification as new conditions and purposes confront one.

Basic, too, is the fact that this is an 'open' universe. There exists no major pattern of the good to which man should conform, no pre-determined goal he should seek. He is free to strive for any ends that have worth to him. By the same token, however, he is responsible both for conceiving and for achieving his better world, for, while no force dominates, at the same time no power aids. One might say that man has come into his majority, has as a race become of age, for he has conceived himself as the architect and builder of his own evolving life, as master of his fate. He must work out his own destiny. Here we will find the challenge of challenges to human intelligence.

3. The Creative Nature of Man, Biologically and Socially

What problem does man face in managing himself? What is his nature? What does it demand of him? Biology reveals living things as multi-potential. Under electrical stimulation the end of a hydroid polyp that would have become tail can be made to become head and perform all its functions. The tadpole remains tadpole or becomes frog depending upon the supply of iodine. The bodily structure of the fruit fly depends upon temperature and moisture. Sex in pigeons and chickens has been changed. This multi-potentiality is even greater in less obvious characteristics. Man is a complex of unorganized impulses or drives. He may become one of many selves or no self at all. Emotional well-being, richness of life, success, depend upon achieving a harmonious integration that is consistent with each one's individual nature and with his physical and social environment. This is a problem that each person in the last analysis, under guidance, must solve for and by himself. Intelligent self-direction, then, is the basic condition of the good life.

A similar problem exists on the social level. Society is a complex of unorganized forces, that is, individuals. These are unique and ever-changing. Richness of life for each depends upon social harmony and coöperation. Society, like the individual, must work out its own destiny, plot the curve of its own adventure. Individuals as individuals and as a group must work out their social philosophy, their plan of life.

In all this there is no substitute for a liberated and disciplined intelligence ever on the job. To accomplish this in each individual is the central purpose of education. With this purpose all details of organization and practice must be consistent.

4. The Dynamic Nature of Learning

Basic also in the construction of an educational program is the nature of the learner. Progressive education is organized in terms of a dynamic child intent upon carrying out his purposes. There was little room for this in the mechanistic concept of behavior with which so much of current educational practice is consistent. To those who hold this view, the individual is looked upon as a responding mechanism. All action is explained in terms of the conditioned reflex. Repetition is the basic method of bond formation, or 'learning.' To the biologist, however, as well as to the casual observer, the human being is characterized by activity, the tendency to strive, to persist, to grow, and to develop. This reconstruction and enrichment of experience are held to be, as Dewey states, the purpose and end of living and education.

Consistent with the view of the biologist is the current dynamic psychology, which interprets the individual as a system of energy in unstable equilibrium. Such terms as 'polarity,' 'gradients,' 'tension,' 'motive,' 'goal' are found. When equilibrium is disturbed, tension is caused, motive is set up, and action directed toward greater stability occurs. And yet equilibrium itself is not the ultimate goal. Tension that is too great or too long sustained is distressing, but ennui is equally unsatisfying. What the individual finds most satisfying, it seems, is successful achieving. But whichever way one puts it, the individual is conceived as dynamic.

Significant for education is the concept of modern psychology that looks upon the individual as an organism. The total organism is involved in every situation. The individual is a whole; all of his attitudes and responses are changed somewhat by each experience. Learning is always multiple. We must, then, consider the total effect of any experience, of any educational practice.

5. Nature of the Educational Responsibility

Traditional educational thinking and practice have not observed the principle that learning is always multiple. Educational problems have been dealt with as separate issues, as if they were independent and isolated, a series of discrete specifics.

On the teaching level this attitude has expressed itself in many ways. We have taught arithmetic for speed and accuracy, neglecting insight and appreciation. We have used rewards and marks as stimuli for learning subject matter without considering the resultant effects on social education. We have secured approved outward conduct in school and at the same time developed servility or inner rebellion against authority and even against school itself.

Not only have we ignored some of the learning effects of specific teaching practices, but we have also ignored the learning effects of school organization and administration. We institute the Platoon Plan because it conserves space, equipment, and teacher time; then tardily we consider its educational effects. We introduce departmental teaching as a concession to limited preparation of teachers or to secure greater expertness in subject matter without due regard for its full consequences. We organize supervision to prevent conflicts among areas of responsibility, to facilitate the execution of administrative judgments, and in so doing sacrifice the integrity of the teacher and the program. Our tests and examinations constructed for objectivity of judgment have frequently been fraught with dire consequences for the educative process and educational outcomes. It must be admitted, however, that many men engaged in educational research recognize this fact and are striving with some success to render the tests and rating scales they set up more nearly valid for the objectives of progressive education.

The importance of our procedure in this respect is emphasized by the widening range of the responsibility of the school. As long as we were concerned merely with subject-matter mastery, the acquisition of formal skills and techniques, and approved in-school conduct, this peculiar blindness was not so inconsistent, although no less tragic. This concept of the function of education has, however, passed. Kilpatrick succinctly and aptly states the modern view as follows: "The school does not accept the whole care of the child; it does accept the real care of the whole child." By its total effect, then, must each specific practice be evaluated.

6. The Nature of Man's Uniqueness

Central in the modern philosophy is the belief that each individual is unique. This belief goes far beyond the 'individual difference' concept basic to intelligence testing and its allied movements. The individual, to the modern educator, differs in myriad ways rather than in a few. His physical body performs many functions, a difference in any one of

which modifies distinctly the nature of the whole. His emotional disposition is a complex of many feeling tones, in any one of which he may vary from his fellows. In fact his emotional disposition changes from day to day, teacher to teacher, group to group, or subject to subject. Each child's background of experience is qualitatively different, a fact that modifies his values, his drives, his personality, and the details of his daily functioning.

In a democratic and progressive social group, individual differences are not to be ironed out but fostered and socialized. Society will profit most by realizing the unique contribution of each, and thus also will the individual life be made rich and satisfying. Adequate provision calls for a teacher possessed of psychological sensitivity and insight wherein her disciplined intelligence is free to modify ways and means as varying conditions demand.

Two more features of the modern philosophy should be noted. The first feature relates to mental health and the integration of personality. Under the traditional mechanistic concept of human nature and learning, these terms had little meaning and their values received little recognition. The individual was merely the sum of his specific neural connections. Growth was a matter of the addition of S-R bonds, each of which was independent. Transfer, except through identical elements, was a myth. But organismic psychology, which considers the whole more than the sum of its parts and as dominating the parts, gives us a basis that makes the concept not only meaningful but also of central importance in education. In the activity and efficiency of the organism its recently sensed emotional tone is of basic significance. It conditions both one's physical well-being and one's mental efficiency. Under the disciplinary, or mechanistic and atomistic, concept of education any concern for the interests, preferences, or feelings of the learner was damned as sugar-coating, wet-nursing, or molly-coddling. In the philosophy of progressive education emotional health and personality integration are second to none in value.

The second feature of modern philosophy concerns the student's social disposition. It was previously stated that man is responsible for conceiving and achieving his better to-morrow. If life is to have order and direction, man must produce it. Social planning is his responsibility. Social progress is in his hands. The good life, then, must be in terms of human well-being. We must educate youth to conceive life wisely and clearly. In a world in which man moves continually forward, the nature of the good life is ever in the making. Fullness of

social knowledge, social sympathy, sensitivity, and insight are basic to clear visioning. Moreover, this is a coöperative task. Each must share, both in visioning and in achieving. Mutual respect, concern for the common good, and effective coöperation in social endeavor are basic to any education that would meet the modern challenge.

II. EDUCATIONAL TRENDS CONSISTENT WITH THIS PHILOSOPHY

From among the many 'newer educational trends and practices' the following have been selected as consistent with the foregoing philosophy and significant for elementary and secondary education.

1. The trend toward viewing organization as an instrument of education, and hence, the tendency to evaluate it by educational standards.

2. The trend away from subject-matter achievement as an end and toward values such as socialization, ability to think, integration of personality, creativeness.

3. The trend away from deadly uniformity and extreme standardization in organization, administration, and supervision.

4. The trend toward individualization of instruction, with a full recognition of the need for developing social sensitivity through group activities.

5. The development and extension of the activity movement, with an emphasis upon life activities rather than upon subject matter *per se*.

6. The trend toward regarding the real care of the whole child as the concern of educators.

7. The trend toward a broadening concept of the curriculum.

8. The trend toward curriculum integration as opposed to curriculum extension.

9. The trend toward a concept of education as guidance, as opposed to the narrow interpretation of guidance as something apart from education.

Each of these trends will be briefly discussed.

1. The Shift in Our Concept of the Nature and Function of Organization

It is generally accepted by social-minded persons, in which group all educators should fall, that all social institutions and practices should be conceived, organized, and evaluated primarily in terms of their contribution to the enrichment and reconstruction of experience; *i.e.*, in terms of their educational value. That this should be true of the organization and administration of the schools seems axiomatic. That this has not been true in practice is evident. Melby reveals ¹ that the

¹ "Effective Instructional Leadership." *Sixth Yearbook, Department of Supervisors and Directors of Instruction.* Chapter III.

prevailing concept of the organization and administration of supervision was borrowed from, or is at least consistent with, the practices of military and industrial organizations. These, no one would assert, are primarily concerned with the reconstruction and enrichment of the lives of their individual members or the lives of the persons immediately affected by them. School organization has been primarily concerned in the smooth running of the machinery. Specific administrative practices, such as objective tests, line and staff organization and rating scales, have been instituted without a due regard for their larger educational effects. This neglect, always a serious defect, is the more to be decried in view of the shift in the nature and widening range of the responsibilities of education.

2. The Newer Concept of Objectives

We have not only widened the range of our objectives; we have also shifted the center of emphasis. There has been a definite reaction against the 'minimum essentials'; that is, against making the acquisition of skills and information the 'essence' of education. These, of course, must not be neglected. They are still to be achieved by each child, but only as meaningful tools in a functional setting. Practice may be required for perfecting their control, but only when mastery itself has become a meaningful and valued goal. But central to the purpose of the new education is intelligent purposing in personal and social life, social sensitivity, ability to think, integration of personality, and creative self-expression.

These goals call for new organization practices. Social sensitivity, for example, calls for a sympathetic understanding of all individuals, whether they possess many or few talents. Social planning requires the coöperation of all, of whatever type or level of ability. A socialized classroom, a coöperative, responsible group of varying abilities, fosters this educational value.

Growth in the ability to deal intelligently with life calls for a curriculum organized primarily about problems vital to the learner and significant for social living. Only as one focuses attention and effort upon them, utilizing both subject matter and skills in their solution, does one grow maximally in the type of social effectiveness and personal richness of life that is visioned by the new education.

Integration of personality, creative self-expression, and constructive social service, all to be achieved in terms of unique individuals, challenge the uniform standards, content, and method of the traditional

school. Variety in detailed outcomes, in procedures, in means must be provided if all the talents of a class are to be fostered and find expression.

3. The Trend toward Greater Flexibility in Organization, Administration, and Supervision

This change in values and classroom organization and processes further implies flexibility in organization, administration, and supervision. As was stated earlier, effective living means intelligent living. Thinking, rather than habit or the conditioned reflex, is basic. Education, which is guided living and which aims at intelligent self-direction, must likewise be dominated by intelligence; its form and processes must be flexible rather than mechanical. There is a revolt against the militaristic-industrial concept of school organization. Uniform objectives, uniform grade standards, the same textbook and lessons for all are examples of the traditional concept. In the traditional school the child must find his place in a fixed and common curriculum. Rate might be changed to some extent or content added or subtracted, but the type and goal were common and fixed.

An organization that would achieve new ends must be consistent with them. Flexible standards, a flexible curriculum, flexible organization, flexible processes are essential if children are to realize fullness of life and contribute maximally to the enrichment and progress of the common life. This flexibility implies a new freedom on the part of the teacher as well as the pupils, for it is useless to talk of creative self-expression for children if the teacher is regimented and forced into a lock-step system. In addition to a flexible system, there must be democratic and creative administration and supervision, leadership that liberates and builds vision and power for intelligent child-guidance on the part of the teacher. A mechanical and autocratic solution of an educational problem is impossible.

4. The Trend toward Individualization of Instruction

The need for flexibility and intelligence at work in classroom and office is emphasized by our awareness of and concern for individual differences. A long line of pioneers has sought to break the lock step. Mighty blows have been dealt in the cause of individualization. Some of these pioneer educators merely set up mechanical plans for achieving traditional values in a more efficient manner, and to the extent that they did this, their schemes were transitory. In their place are appear-

ing programs that take account of differences in quality of personality and in purpose as well as in rate of learning under conditions that temper the whole with genuine group living.

This new and wider concept of individualization rejects the traditional concept of a common standard of achievement for all, and even the notion that three or four different standards of achievement in terms of ability groups will suffice. The new program takes its cue from the concept of democracy that holds that the maximal growth of the individual can best be attained through a situation in which the individual is stimulated and encouraged to make his unique contribution to common ends and purposes — without raising the question as to the relative values of these contributions.

This concept calls for basic reorganization of school and curriculum. In place of a common lesson and goal is a comprehensive unit of work. Within it all may find opportunities for study, for self-expression, for service to the common cause, and for joy in successful achieving. Small groups will need to be formed in terms of interests and activities, but they will be subordinated to the problem in hand, the ends sought, and will undoubtedly shift materially as new problems are attacked and solved.

5. The Development and Extension of the Activity Movement

Basic in the modern trends are the concept of a dynamic, purposing child and the principle that the reconstruction and enrichment of experience come through experience. The experience-activity curriculum and school have followed. In this type of school, with its flexible standards, its pupil responsibility, its varied approaches to a common problem, and its multiple means of learning and of expressing such learnings, ability grouping may become a minor problem. In these 'activity' rooms, differences do not obstruct or annoy. As a matter of fact, they stimulate thought and enrich the group experience, at the same time providing for the social education now such a crying need among men.

6. The Trend toward a Real Care of the Whole Child

Organismic psychology and the shift in the concern of education from the mastery of certain essential knowledges and skills to the quality of child living have led to this significant trend. The child is an organic whole. Responsibility for his development cannot be farmed out piecemeal. Whatever is done to him from any angle affects the whole, and must consider and safeguard the whole. This, together with

the concern of education for the child's quality of living in all its richness and variety — again an expression of the whole rather than a series of discrete and independent acts — necessitates a definite reconstruction in our range of values, in our organization and practice. Multiple learning is a fact. Multiple values must be considered and safeguarded. Not merely his progress in subject-matter mastery but also the child's mental health, his self-confidence, his social attitudes, his attitude toward school and learning, the quality of his motives and values are at issue in each situation. Only as these are justly protected and nourished in each practice can such practice be considered adequate or educationally intelligent.

7. The Broadening Concept of the Curriculum

As an example, the present comprehensive program of extracurricular activities is seen as a definite reaction against the formality of the regular curriculum. Worth-while activities that did not seem to fit in with the concept of subject-matter mastery were formerly encouraged for their own sake. Now we find it much easier to justify them in terms of the new objectives.

When extracurricular activities are utilized for the purpose of modifying and liberalizing the formal program, it is possible to utilize also many more diversified talents and abilities in the regular school program. For example, if the various science clubs are definitely recognized as a part of the science program, natural and logical groups will be formed upon the basis of interest.

8. Curriculum Integration *vs.* Curriculum Extension

Curriculum integration on the elementary level has come to be widely accepted as an ideal. As a practice it moves on apace and apparently its full and general realization waits only for the ripening of leadership ability and propitious conditions. This seems true in spite of the trend, found frequently to-day, to departmentalize the intermediate grades.

On the secondary level there are two distinct and somewhat antithetical movements under way in education. Compartmentalization of subjects is going on apace. The total offerings of schools have increased, we think, alarmingly in the last decade or two. For example, instead of one course in art, we now find courses in every conceivable aspect of art. This extension makes it possible for specialization in terms of individual interests, capacities, and needs. In contrast, the

distinguishing feature of the programs of the schools in the 'Eight-year Experiment' on the secondary level is the realignment of subject matter into 'core courses,' 'culture epochs,' 'broad themes,' and the like.

These movements would seem to minimize the necessity of classification of pupils into distinct groups for all instructional purposes, because they make both for greater flexibility of achievement, and for greater diversity of activity in terms of abilities, interests, and needs.

9. The New Concept of Guidance

The concept of guidance is, perhaps, just another way of expressing the clearer and finer insight into individual differences and the nature of daily living. Intelligent living is wise choosing. Choice is an ever-present problem. Guidance is guidance in wise choosing, and since individual and situation vary, it is always a unique problem. Only a liberalized and disciplined mind ever on the job in a flexible organization is adequate to meet the challenge of individual differences or the problems of guidance. Life is too complex, too fluid, for us to hope to solve any of its vital problems by mechanical measures.

III. EVALUATION OF ABILITY GROUPING IN FORMS OF NEWER EDUCATIONAL PRACTICES

It is upon the basis of the philosophy of education set forth in the preceding section, and the significant trends and practices that are consistent with this philosophy, that ability grouping is to be evaluated. It must stand or fall in terms of its value as an instrument or device for achieving the educational outcomes that are explicit or implicit in this philosophy and practice. To attempt an evaluation in any other terms is to ignore the vital relatedness of purposes, means, and ends, and to encourage inconsistency of action.

1. Criteria to Be Used

It is pertinent, therefore, to raise questions such as the following concerning ability grouping:

1. Does it recognize the concept of a changing and 'open' universe, and facilitate flexibility of behavior to meet changing conditions of living?
2. Does it promote the achievement of intelligent self-direction on the part of the pupil?
3. Is it consistent with or favorable to the development, on the part of pupils, of a social philosophy of living?

4. Does it recognize the child as a dynamic organism and facilitate the growth of the 'whole child'?
5. Is it consistent with the trend away from deadly uniformity and standardization in organization, administration, and supervision?
6. Does it promote the newer values in education, such as socialization, creativeness, ability to think, growth of interests, integration of personality, and the like?
7. Does it facilitate the individualization of instruction, at the same time conserving the values of group relationships?
8. Does it facilitate the development of the activity movement as a technique for promoting maximum growth?
9. Does it encourage curriculum integration?
10. Is it consistent with the new concept of education as guidance?

2. Concept of Ability Grouping Assumed in This Discussion

While it is recognized that ability grouping is not a static concept and that, as a consequence, there is danger in holding too closely to a particular interpretation of the term, yet it is necessary for purposes of discussion to give it a rather definite meaning. Otherwise it cannot be subjected to evaluation.

Ability grouping is interpreted as a scheme of segregating pupils within a given course into relatively homogeneous sections upon the basis of one or more 'abilities' that are regarded as essential to the achievement of the objectives of the course. Needless to say, such 'homogeneous' sections are usually made the point of departure in planning and organizing instructional materials. In some cases, the adaptation of instruction to the various sections consists merely in varying the rate of progress in terms of fixed subject matter; in others, it takes the form of enrichment of materials; in occasional cases, no adaptation is made, either because teachers or administrators are indifferent, or because they have a naïve belief that grouping, in and of itself, possesses values.

Excluded from our present consideration are the small groups of pupils organized informally by the teacher for a specific purpose. For example, certain pupils may be interested in studying the means of purification of the water supply of the community. A group is formed for this purpose. Or perhaps the project is the publication of a newspaper, and certain divisions of labor are necessary. Groups are formed in terms of the outcomes to be achieved. While an extension of the term 'ability grouping' might be made to include these activities and all others in which two or more children of similar abilities or interests

work together, such an extension of meaning would render the phrase not only unmanageable but almost meaningless. The writers propose, therefore, to hold to the more restricted meaning of the term, and to regard ability grouping as an instrument or device for classifying pupils into sections for instructional purposes.

Tools or instruments may, of course, be utilized to accomplish various ends. A knife may be used either for killing or for preserving life. To discuss whether a knife is 'good' *per se*, is, of course, meaningless. One must inquire for what purpose the knife is to be used. So with ability grouping. It must be evaluated in terms of the total program of education — not in terms of its effectiveness as an administrative device.

3. Application of Criteria to Ability Grouping

Let us now return to our criteria. Are they capable of application to this prevailing concept of ability grouping? Fundamental to any program based upon ability grouping is the assumption that learning takes place more effectively if the range of differences in pupil ability is materially reduced, so that learning activities that will be appropriate for the group as a whole may be selected. In practice, then, this would seem to perpetuate the daily assignment-recitation technique of teaching in which the same assignment is made to all pupils. This, however, is not necessarily true. There is no inherent reason why teachers cannot provide for individual differences in interests and needs *within sections*, and thus fully meet Criterion 1 of our philosophy, which calls for the cultivation of flexibility of behavior to meet changing conditions of living. Yet the fact remains that the device lends itself to the facilitation of uniformity of assignment and instruction. The aspects of such mass instruction will be less obvious when pupils are grouped more homogeneously. Consequently, the teacher will be less likely to recognize and provide for individual differences.

Criterion 2 calls for an emphasis upon the gradual achievement of intelligent self-direction on the part of pupils. Again, it must be pointed out that there is no inherent reason why pupils cannot become self-directing under a scheme of ability grouping. If homogeneity is not mistaken for uniformity, learning activities may be planned that will promote the release of intelligence. At the risk of being repetitious, it must be pointed out, however, that ability grouping lends itself admirably to the submergence of the individual in the common activities of the group.

Does ability grouping promote the development of a social phi-

losophy of living on the part of pupils? Here the writers are inclined to take very definite issue with the proponents of ability grouping. By definition, the assumption is made that a certain group of abilities may be used as the basis for the classification of pupils into sections. In the best practice this means that scores on various types of tests, previous subject-matter achievement, health and personality factors, and the like are weighted, and that sectioning is done on the basis of this balanced criterion. In most cases, only one or two factors are taken into account. Despite the disagreement among psychologists as to the appropriateness of the so-called 'intelligence' test for grouping, it still probably occupies first place among all the bases of classification, and in many cases it is the sole basis.

Regardless of how the sectioning is accomplished, the principle is the same. A few abilities are accepted as standards for determining whether pupils can work effectively together — and the assumption is made that the same effectiveness with which a given group may learn the multiplication tables, for example, will be maintained in all other types of activity in which that particular group may engage. Now the writers maintain that no such rigid classification of human beings can legitimately be made. After such a classification the differences will still be more significant than the similarities.

It is contended by the writers that the modern concept of democracy implies a recognition of the uniqueness of the individual — a basic respect for the full and complete development of personality. This means that differences among individuals are cherished and nurtured. In practice, therefore, the school must recognize various types of grouping for the purpose of achieving social sensitivity, and for fostering the all-round growth of the individual. The most desirable group activities, then, are those in which each individual is stimulated to make his *unique contribution* to common ends. The true social group cannot function effectively if all individuals possess the *same* talents. In a school activity, as in a social activity outside the school, there is need for a wide diversity of talent. For example, the publishing of the school newspaper utilizes those who have intellectual, esthetic, and practical interests. It calls for those who work most effectively with the brain, as well as those who have skillful hands; it calls for those who are at their best in planning, and for those who are at home in carrying out details. No program of ability grouping, as the term is commonly understood, could succeed in sectioning effectively for an activity such as the one just described. The fact that ability grouping has

met with apparent success is due largely to the fact that the school has been willing to neglect genuine social values, and to strive for uniformity of achievement in so-called 'fundamental' skills and information. Hence a school that regards the education of the whole child as important and demands that its program be an exemplification of democracy at its best (Criteria 3, 4, and 6) cannot be satisfied to base its program on any such mechanical device as ability grouping. As a matter of fact, sectioning in many cases might actually retard or even make impossible the realization of a truly democratic educational program.

As has been pointed out previously, there is a definite trend in school administration away from standardization and uniformity. The business ideal applied to educational management is definitely *passé*. In its place is developing a growing concept of management as an instrument or tool for realizing the social ideals of democratic living. Ability grouping as an administrative device for securing uniformity of product would seem to be closely bound to the older concept of uniformity and standardization, for, let us repeat, it is based upon the conception that human materials can be graded and labelled as crates of oranges according to size and quality. The acceptance of new values for education requires that the administrative machinery be definitely adapted to these ends. Hence, creativeness, thinking, individualization, integration of personality — all call for a new type of organization, a new freedom on the part of teachers to adapt means to ends (Criteria 5, 6, and 7).

One of these new instruments for the achieving of these newer goals of education is the movement toward the developing of an *integrating* program. Subject-matter lines are being broken down, and activities planned jointly by teachers and pupils are being emphasized. On the elementary level, this movement is identified with the activity movement, which stresses completeness of experience and continuous reconstruction. On the secondary level, programs are being organized around broad concepts of culture. 'Human progress' is frequently utilized as an integrating principle to give unity and richness of meaning to the experiences of the child. Work is being organized in terms of broad, comprehensive units that cut across subject matter, and in these units individuals with diverse interests find constant opportunity to explore and develop these interests. A common standard of achievement for all is giving way to individual standards in terms of the needs and interests of pupils. Pupils with similar interests and needs are encouraged to work together when such work best facilitates the achieve-

ment of the ends set up. There is need to inquire concerning the various 'rates of learning' of the group. Intelligence quotients are used by the teacher as significant factors in guidance, not as a scheme of classification, or for making invidious distinction among pupils. The pupil who works faster accomplishes more in terms of his own needs and abilities. The pupil with a high intelligence quotient merely assumes responsibility commensurate with that of his endowments. All work up to the level of capacity — always, however, within the matrix of a true social situation.

Undoubtedly there are many learning situations in which the need for variation in achievement is not significant, and in which learning will be facilitated by grouping in terms of a particular ability. For example, if we grant the desirability of conducting specific drill exercises in large groups — exercises in which uniformity of outcome is desirable — grouping in terms of the ability of pupils to achieve this outcome will make possible better utilization of time on the part of the teacher and, on the whole, more satisfactory results in terms of pupil learning. Traditionally, most of the learning products of the school were of this type — and because of this fact, ability grouping has been hailed by many as a satisfactory solution to the problem of increasing heterogeneity among pupils. The philosophy of education upon which this discussion is based, however, holds that under satisfactory conditions, single learnings of this type are much less significant, and much less to be preferred, than situations in which multiple learnings play a large part. Ideally, the school should strive to secure the acquisition of common skills, knowledges, and abilities in relation to broad, comprehensive, unified activities. To the extent to which this is accomplished, ability grouping tends to become less effective and consequently less desirable, for uniform rates of learning and uniform abilities play a less important rôle in the total process of education.

Thus it would seem that ability grouping as commonly practiced leaves much to be desired as an effective tool for achieving the values of the new education. It has served a very useful purpose in attempting to break the lock step in education by calling attention to the fact that individuals vary in abilities, interests, and needs. It has helped to bolster up the time-honored conception of education as the achievement of fixed goals, and undoubtedly has actually proved its value in attaining those goals. As a device of transition from the old to the new, it has proved its worth. Undoubtedly it will continue to serve a useful purpose for a long time to come. Yet as we succeed in capturing the

new spirit of creative education, we shall develop new and more effective techniques for recognizing interests and abilities — techniques that will be more consistent with our growing concept of a dynamic social education that bids fair to salvage much from our sorry experiment in democratic living.

SECTION III

THE ADAPTATION OF INSTRUCTION FOR ABILITY GROUPS

PREFATORY NOTE

The growing recognition of individual differences is changing to a marked degree our instructional procedures. Instead of teaching subject matter for its own sake, we are using it as a means of individual development; instead of a single course of study for all children, we are selecting subject matter in the light of pupil needs. This section considers particularly those adaptations that can be made for pupil groups of different abilities.

In Chapter VIII Doctor Baker, from his broad background of clinical experience and experimentation in Detroit, analyzes the characteristics of bright, average, and dull groups of children and shows how these characteristics should control (1) the content of the curriculum, (2) the methods of teaching, and (3) the selection and training of teachers.

In Chapters IX and X, Doctors Harap and Hopkins analyze recent courses of study in elementary and in secondary schools to discover the ways in which subject matter has been differentiated to provide for individual and group differences. Neither of these contributors was a member of the Committee and consequently did not have the advantage of its discussions. Members of the Committee would disagree with some of their interpretations; for example, they would question whether the use of differentiated curricula is on the wane.

All three chapters present principles and illustrative material that should prove helpful in adapting instruction to different ability levels. Two lists presented as a supplement to this section give sources of other illustrative material on the curriculum.

W. W. C.

CHAPTER VIII

THE PSYCHOLOGY OF ABILITY GROUPS AND IMPLICATIONS FOR INSTRUCTIONAL DIFFERENTIATION

HARRY J. BAKER
Director, Psychological Clinic
Detroit Public Schools, Detroit, Michigan

In this chapter three instructional groups, the bright, the average, and the slow, will be discussed with respect to (1) their characteristic learning qualities, with particular application to methods of teaching, (2) the aims and objectives of their education, (3) teacher qualifications and training, and (4) the differentiation of curricula and subject matter.

I. THE EDUCATION OF BRIGHT PUPILS

1. Definition of Bright Pupils

Bright pupils may be more or less arbitrarily defined as that group of about twenty to twenty-five percent of the school population at the upper end of the learning range. The reader is referred to the description of the typical bright pupil in the introductory chapter. Most of these bright children have intelligence quotients lying in a twenty-point range from approximately 110 to 130. There are usually a few individuals in this group who are somewhat less intelligent, but who have successfully capitalized their habits of industry, their fortunate home backgrounds, or their desirable social and personal traits beyond that expected of their mental level. School authorities should discover such pupils and give them every advantage in the grouping plan.

In educational achievement bright pupils tend to be accelerated one or more years beyond average children of the same age. There is a possibility that they will work more nearly up to their mental capacity if a suitable differentiation is provided. Their characteristic methods of learning are different from those of average and slow children, as will be shown later on. Such characteristics include a versatility of mental processes, much initiative and independence, and adeptness in long-time projects involving greater stress upon abstract learning.

2. Characteristic Qualities of Bright Pupils

a. Quantitative Mental and Learning Factors. In this discussion the term 'quantitative' is applied primarily to developmental factors, such as mental age, while 'qualitative' is applied to distinctive learning processes. Although certain phases of the qualitative may be more narrowly interpreted in a quantitative way, a distinction between the two terms is made in order to help clarify the discussion.

Since bright pupils generally have mental qualities superior to average pupils, the nature and amount of these differences should be considered. As a group, their median I. Q. is approximately 117, indicating a rate of mental growth about seven-sixths the rate for normal, or average, children. These mental ages at the various age and grade levels are shown in the following table.

TABLE I. — AVERAGE MENTAL AGES OF BRIGHT PUPILS BY AGE AND GRADE, ASSUMING PROMOTION BY CHRONOLOGICAL AGE¹

<i>Grade</i>	<i>Age</i>	<i>Mental Age</i>	<i>Grade</i>	<i>Age</i>	<i>Mental Age</i>
Lower Kdgn.	5-6	6-5	Lower 5th	10-6	12-4
Upper Kdgn.	6-0	7-0	Upper 5th	11-0	12-11
Lower 1st	6-6	7-7	Lower 6th	11-6	13-6
Upper 1st	7-0	8-1	Upper 6th	12-0	14-1
Lower 2nd	7-6	8-9	Lower 7th	12-6	14-8
Upper 2nd	8-0	9-4	Upper 7th	13-0	15-3
Lower 3rd	8-6	9-11	Lower 8th	13-6	15-10
Upper 3rd	9-0	10-6	Upper 8th	14-0	16-5
Lower 4th	9-6	11-2	Lower 9th	14-6	17-0
Upper 4th	10-0	11-9	Upper 9th	15-0	17-7

This table assumes that bright pupils progress in school by chronological age. It will be noted that such pupils have a mental acceleration of one year in the early grades, of two years in the sixth grade, of two and one-half years in the ninth grade, and probably of three years at the twelfth grade.

There are two aspects of this problem that merit consideration:

First, there is an accumulated mental growth from birth to age of school entrance amounting to one year's advance over average chil-

¹ This table and the similar one for slow pupils in a later section are taken from Harry J. Baker, *Characteristic Differences in Bright and Dull Pupils* (Public School Publishing Co., Bloomington, Illinois, 1927), p. 105.

dren, and this difference continues to increase as just noted. This mental acceleration gives bright pupils an advantage when compared with average pupils of the same chronological age. The bright child with a mental age of seven years in the first grade has a much better chance of school success in the usual sense than has the average child, whose mental age is six years or the slow child whose mental age is five years. The curriculum should be readjusted to meet the abilities of the various groups at these early ages.

Second, the cumulative effects of different rates of mental growth give evidence of extreme differences in the mental development of bright and of average pupils. The mental growth of bright children is only seven-sixths that of average children, but the effects of the cumulative difference in mental age are much greater. This actual accumulated difference is a very practical advantage in adapting our educational provisions to the needs of bright pupils. It indicates the need of a curriculum radically different from that of the average and the slow children.

Mental age and its attendant qualities raise general problems relating to the curriculum for bright pupils. Among them is the issue of enrichment at all levels *versus* acceleration in rate of promotion with its social complications. A second problem centers around what should be offered as maximally desirable curricula. *In any case, the ease with which bright pupils master the average work does not guarantee that these offerings are the best for them.* From the standpoint of homogeneity in mental age, bright pupils of two adjacent grades or half-grades are much more homogeneous than are bright and average pupils of the same half-grades. At the age of twelve years the mental-age difference between two adjacent half-grades is seven months; between bright and average pupils the difference is two years (see Table I).

b. Qualitative Mental Factors. In addition to these quantitative mental differences, there are certain qualitative differences in learning between bright pupils and others that merit more consideration than has ever been accorded them. These qualitative differences are so great that constant attention should be directed to the adaptation of the learning process to meet them advantageously. Such adaptation often does not occur in groups that are not segregated.

1. Bright pupils are capable of abstract reasoning, which consists of performing, mentally, processes otherwise laborious. This characteristic quality is a tremendous time-saver in learning. These pupils

are soon able to think in symbols or groups of situations rather than in the specific data. Therefore, they desire to leave behind the concrete and physical aids and to proceed quickly into theory and symbols rather than to remain indefinitely on the plane of the elementary stages of learning.

2. The learning of bright pupils is characterized by versatility in the use of mental processes. They usually possess multiple-track, rather than single-track, minds. In attempting to recall a person's name, for instance, they associate it with where the person was when met, whom he resembles, at what time, as well as on what occasion, rather than merely attempting unaided recall. This mental exploration of devious pathways, with its attendant silence, or lack of immediate response, is often interpreted improperly as no response or as deliberate procrastination.

3. Bright pupils prefer long-time units of work with greater returns, rather than short, specific units with lower returns. Day-to-day assignments with study-and-recitation techniques do not gain their enthusiastic approval.

4. They possess desirable powers of self-criticism. They usually know whether they are right or wrong, and when they feint, many persons are certain to be greatly and cleverly deceived.

5. They dislike too much concrete routine, but are willing to employ a certain amount of it when they become aware of their need for it.

c. Other Characteristic Factors.

1. Bright pupils tend to possess a range of special mental abilities and disabilities characteristic of all types of intelligence, but they learn to, or know how to circumvent their special disabilities by the clever substitution of mental processes in which they do have facility. They also use their very special talents as a constructive stimulus in all their mental activities. The advance of human progress has been due largely to the proper utilization of the special talents of the bright and of the gifted.

2. These children are generally above the average in physical growth, although they are often not believed to be so on account of being associated with older children in school. They excel the others in strength, speed, and muscular coördination, although their superiority here is relatively not so great as it is in mental fields. This trend toward physical superiority is even more marked among the mentally gifted than among the superior.

3. Bright pupils tend to have personal and social characteristics

of a more desirable nature than have average and slow pupils. Their superior mental powers act as a governor or balance wheel to their non-intellectual traits, guiding them along the ways of logical and planned response. They interest themselves in others so that, by contrast and by exchange of views, they may benefit from the experiences of others. In heterogeneous classes bright pupils tend to be in an elated state of mind because their superiority is so apparent and proceed with a confidence and self-assurance that in adulthood is often rudely shattered when they feel the effects of natural, yet harrowing, competition with those of similar ability. It would seem nearer to expected future situations to accustom them to such competition in school. Charges that 'college graduates are no good' in industry and business may have their basis in this situation.

4. Bright pupils easily discover a logical coördination of their various school subjects. The fundamental subjects, the shop, the auditorium, and the gymnasium stand as a unified entity in their schooling. They profit greatly from the variety of curriculum content that can be offered only through some plan of departmentalization with various teachers versed in different special subjects.

The characteristics of bright children have been tersely described by Adams and Brown in the following list of 27 points:¹

1. They have a high degree of general intelligence.
2. They have remarkable powers of analysis and of general reasoning ability.
3. They have a longer span of attention than the average and dull children.
4. They can understand and follow directions better than the average and dull children.
5. They have an outstanding degree of originality, resourcefulness, initiative, play of imagination, and ability to interpret abstract ideas.
6. They can recognize related material and can therefore look up reference material pertinent to the lesson.
7. They can relate their thoughts, illustrations, and answers to life situations.
8. They can learn through their mistakes and avoid repeating errors.
9. They have a natural, aggressive interest in most subjects, and therefore less motivation is required on the part of the teacher.

¹ Adams and Brown. *Teaching the Bright Pupil* (New York: Henry Holt and Co., 1930), pp. 23-25.

10. They like to read. The gifted child of seven years frequently reads more than the average child of fifteen.

11. Their ability usually is general, not special or one-sided.

12. Their superiority shows in early life, and is little influenced by formal instruction.

13. They are often underestimated by parents, and occasionally by themselves.

14. They often have the home advantages of superior cultural conditions.

15. They are, as a group, taller and heavier.

16. They are stronger and healthier than average and dull children.

17. While they are likely to be accelerated on the basis of chronological age, they are usually two or three grades retarded on the basis of mental age.

18. They are usually small for their grade, but large for their age.

19. They are average to above the average in nervous stability.

20. They show marked superiority in moral and personal traits.

21. They are usually good citizens, and their general deportment is satisfactory.

22. They occasionally tantalize teachers and prove to be a source of worry to them, because they are so keen that they surpass the teacher in mental activity.

23. They resent corporal punishment more than average children of the same chronological age.

24. They are reasonable and easy to discipline if their elders are kind and tactful in dealing with them.

25. They are interested in play and tend to choose playmates of their own mental age.

26. They usually like to be leaders.

27. They usually come from superior parental stock.

All these quantitative and qualitative characteristics of bright pupils, which are markedly different from those of average and slow children, show the need of differentiation in school activity to meet their needs.

3. Curriculum Objectives and Methods of Teaching for Bright Pupils

The aims, objectives, and principles underlying the curriculum for bright pupils merit more study and consideration than has been given them up to the present time. While in a certain sense some general aims and objectives, such as the seven cardinal objectives, serve satis-

factorily as a universal guide for the education of all children, there is a need for special interpretation and adaptation of them to bright as well as to slow pupils. After reviewing many lists and statements of objectives, the writer summarizes and formulates the following partial list as especially applicable for bright pupils.

1. The various courses of the curriculum, such as reading in the elementary grades and English in the high school, should be so organized as to amalgamate themselves continuously into a meaningful entity. This end should be consciously planned in the elementary schools, where children are less aware of its importance, and should be made possible for them in the high school and college. Considerable revision and many additions are probably necessary in all courses to realize these possibilities of integration. The movement toward an activity curriculum, cutting across all the traditional lines of subject matter, undoubtedly is an effort to attain this goal.

2. All courses of the curriculum, at all levels, should be so organized that their fundamental skills are mastered completely and satisfactorily, concurrently with their applications. In courses involving handwork, physical activity, and a maximum of simple habit-forming activities, this balance between interpretation and theory should be continuously maintained; otherwise the interest of bright pupils in such a subject soon wanes.

3. The interpretative aspects of all courses should soon lead to abstractions and to generalizations that open avenues of power in applying theory to practice, as well as new areas of theory. From this point of view all courses really should fulfill the old adage "Not ended, but just begun." Needless to say, some new material must be incorporated into all courses, so that they may take on an exploratory and coördinating nature, suited to the abilities of bright pupils.

4. Courses of study for bright pupils should be so organized that opportunity is provided for group participation and for individual contribution. A series of units or projects may be shared jointly by a small group or a class, but with each member adding his unique part to the whole. In this manner the unusual ability of the individual will be respected and fostered, and, at the same time, the value of his part will be merged into the group, so that the result of the group will be more effective than that of any individual. The composition of the group should be arranged so homogeneously that this type of procedure will operate with finish and dispatch. It is uniquely applicable to bright pupils.

5. The content and arrangement of the curriculum should be such that the full abilities of bright pupils are continuously utilized. Unless this condition obtains, these pupils too often believe that school and life are easy races requiring little effort, or at most a little cramming for examinations. As a result the false self-confidence and the feeling of superiority thus engendered are often rudely dispelled in the face of strenuous competition in vocational fields at the adult level.

6. The organization of the curriculum for bright pupils should be such that qualities of initiative and leadership are fostered and developed. These pupils should be the first to understand new trends in the social order and to adjust their own codes of action and behavior to orderly participation in socially desirable activities. They should be willing and intelligent participants and leaders in civic, political, and larger social movements, and should help others to interpret such movements. They should be trained to understand the psychology and make-up of all other groups; otherwise they may set a harsh and impossible standard for those who are less fortunately endowed. Understandings of this sort will not come incidentally by chance association, or merely by school mingling, or by the turn of social events. Definite study and instruction relating to the characteristics of all levels of the population are necessary, although the manner and point of their introduction into the curriculum are undetermined at the present time.

The order of presentation of these objectives is not designed to give more emphasis to one than to another. They are all important. The development and revision of the subjects of school instruction necessary to bring about these desirable aims and objectives suggest that a big undertaking is ahead.

4. Qualifications and Training of Teachers of Bright Children

The success or failure of any plan of education depends upon the qualifications and training of the teachers. An excellent teacher seems able to secure performance, in terms of educational tests, that is about one year in advance of what a poor teacher can secure with the same group. Relatively, bright pupils profit most and the slow pupils least from superior teaching. It is merely begging the question to expect to eliminate differences in pupils by improving the teaching of one or all groups, since improvement in results occurs in all groups under better conditions.

It is not necessary to emphasize here the importance of superior

qualifications in all teachers or in the teachers of any particular group. It is sufficient to say that such qualifications cannot be overstressed, and that the general level of such qualifications is hopefully on the upgrade.

Teachers of bright pupils should have the qualifications required of teachers of all other groups, and in addition, they should be unusually resourceful in meeting the more varied interests of bright pupils. They should be able to select and plan long-time projects, so that a balance of time and topics may be maintained. They should understand the balance of the mental and the physical, the abstract and the concrete, and the simple and the rich associative learning, characteristic of bright pupils.

It is evident that a wide knowledge and experience in travel are desirable for purposes of stimulation. Further, these teachers should learn to be efficient organizers, especially to keep themselves in the background as a directing force.

These suggestions imply the possession by teachers of a knowledge of the psychology of all groups, with particular emphasis upon the bright. Mental measurement, mental hygiene, modern educational methods, and a knowledge of practical educational philosophies are desirable as a pedagogical basis for the work with bright pupils.

II. THE EDUCATION OF SLOW PUPILS

1. Definition of Slow Pupils

In the slow group are to be found from twenty to twenty-five percent of all the school population. Ordinarily it should not include the lower one or two percent of school children who are more properly enrolled in special mental classes. The intelligence quotients tend to range from 70 to 90. Naturally, some slow pupils with good habits of industry should be considered for the average group, and some average pupils with poor habits of industry might better be placed temporarily, at least, in the slow group. In the latter cases, however, careful study of the factors other than intelligence that may have caused scholastic failure should be made and remedial measures taken to enable such pupils to be restored to their natural group.

The reader is referred to the typical case described in the introductory chapter. Slow pupils are mentally retarded more than one year at the time of school entrance and fall farther behind the others in the upper grades, since their rate of growth continues to be slightly

less than that of the average. Because they learn slowly and with difficulty, it is desirable that special study and attention be given to them as a group. Some type of segregation that permits a study of their educational needs and learning processes is a minimal recommendation.

2. Characteristic Qualities of Slow Pupils

a. Quantitative Mental and Learning Factors. Slow pupils have mental ages and intelligence quotients generally below those of average pupils. The median I. Q. of slow groups is approximately 83, which is five-sixths normal mental growth. The mental ages of this group at the various age and grade levels are shown in the following table, if promotion by chronological age is assumed.

TABLE II.—AVERAGE MENTAL AGES OF SLOW PUPILS BY AGE AND GRADE, ASSUMING PROMOTION BY CHRONOLOGICAL AGE

<i>Grade</i>	<i>Age</i>	<i>Mental Age</i>	<i>Grade</i>	<i>Age</i>	<i>Mental Age</i>
Lower Kdgn.	5-6	4-7	Lower 5th	10-6	8-9
Upper Kdgn.	6-0	5-0	Upper 5th	11-0	9-2
Lower 1st	6-6	5-5	Lower 6th	11-6	9-7
Upper 1st	7-0	5-10	Upper 6th	12-0	10-0
Lower 2nd	7-6	6-3	Lower 7th	12-6	10-5
Upper 2nd	8-0	6-8	Upper 7th	13-0	10-10
Lower 3rd	8-6	7-1	Lower 8th	13-6	11-3
Upper 3rd	9-0	7-6	Upper 8th	14-0	11-8
Lower 4th	9-6	7-11	Lower 9th	14-6	12-1
Upper 4th	10-0	8-4	Upper 9th	15-0	12-6

There are two features of Table II that merit special mention:

First, slow pupils bring into the early grades the accumulated effect of a slow rate of mental growth. This retardation amounts to about one year of mental backwardness in the first grade, two years in the sixth grade, and probably three years at the end of the high school. The difference appears to be a large one even in the first grade, because these children do not gain acceptable mastery of reading at their mental age, whereas children of average ability do. This accumulated immaturity is commonly mistaken for a very slow rate of mental growth. For example, in the lower first grade, average children have a mental age of six years and six months and make a mental-age gain of six months in the next six months. This mental

age is sufficient to do the expected first-grade work under normal conditions. However, slow pupils at that grade level have a mental age of five years and five months, which increases to five years and ten months in the six months' period. This is a fair gain, but throughout the entire first-grade period the actual mental age remains below six years. Children of this mental level have difficulty with the usual reading course, and since they do not make good progress, they give the impression of not developing mentally, even though they are making the five-sixths normal progress to be expected.

Second, the rate of mental growth of these children is actually eighty-three percent normal, which is not an insurmountable handicap. In each six months of time they gain, typically, five months in mental age. If teachers would learn to avoid comparing them with average children and take them at their own level of development and their own rate of mental growth, the solution of their problems would not be so difficult.

There are certain special problems of curriculum adjustment for slow pupils growing out of their mental levels and rates of growth. It is probable that the curriculum of the upper elementary-grade and high-school levels should be rewritten for the slow pupils in order that its degree of difficulty may be commensurate with their immaturity. This solution seems more satisfactory than to retain such pupils in a grade corresponding to their mental age or to offer them the curriculum of that lower grade while having them enrolled in the higher grade. But in the lower grades slow pupils are not ready for the curriculum usually offered. At present there is a movement to postpone traditional instruction for a semester, or even for a year, pending mental growth. The waiting period can be profitably devoted to activities similar to those of the kindergarten in order that better habits of social coöperation may be developed. If the early-grade curriculum is postponed slightly, and the upper-grade work is offered at the usual time, there seems to be a period in the early primary grades when extra grades must be made up, but this procedure is not very practicable for slow pupils. The entire situation needs to be studied in all its aspects and implications.

Slow pupils of two adjacent half-grades are much more homogeneous in intelligence quotient and in mental age than are slow pupils and average pupils of the same grade. In the lower sixth grade there is typically a mental-age difference of twenty-three months between slow and average pupils, but a difference of only five months

between slow pupils of the lower sixth and those of the upper sixth grade. The difference is nearly five times as great in the former case, yet the grouping within the same half-grade is a very common practice.

b. Qualitative Mental and Learning Factors. While the needs for differentiation are obvious from a mental-age point of view, the qualitative differences inherent in the different I. Q.'s point even more emphatically to the need of special treatment. A few of these aspects will now be presented.

1. Slow pupils tend to learn by very simple mental processes. Their learning proceeds slowly and with the need for considerable drill and repetition. Rich associative processes and methods tend to confuse and bewilder, rather than to clarify. Their learning often seems inaccurate and faulty, since even the simple bonds do not always operate efficiently and correctly. It would seem desirable to extend the possibilities of their learning to two, or possibly three, bonds, or tracks, instead of one if it can be done without mental confusion. Just how far this fine art of teaching slow pupils can be effectively carried has never been determined. Since these pupils tire relatively easily and have short spans of attention, it is a mistake to devote all their time to drill upon simple learning situations.

2. They like the concrete rather than the abstract; they prefer the specific to the general. If too much of the abstract and general are required, they become merely linguistic robots on a very immature level. The simpler elements of the abstract should eventually be built up from the concrete and be presented so as to give them the benefit of whatever power they can develop. When this principle is not understood or practiced, they merely tend to acquire a hopeless maze of partially learned specific bonds.

3. They prefer short-time units and specific assignments. If education did nothing more than develop simple clarity in the learning of the dull, it would be performing a service now relatively unknown. These children need a great amount of judiciously arranged review interwoven with new material. After they are thoroughly grounded in the short-time units, experimentation should determine in what manner and how far the assignments should be extended into longer units. Education at this level too often tends to be a series of uncoordinated learnings. It is as if an amateur astronomer were merely to count the stars without understanding the relationships existing between them.

4. Slow pupils possess limited powers of self-criticism. They often

do not know whether they are right or wrong, and at times they seem to care little. This tendency may be in part inherent, but it probably has been stimulated and aggravated by the educational confusions to which they have been subjected. Slow pupils should have opportunity to discover and correct their errors. The learning processes should be so organized that such pupils are not constantly overwhelmed, but are enabled to proceed with order and certainty.

c. Other Characteristic Factors.

1. Slow pupils show a range of special abilities and disabilities comparable to that of bright pupils, but they do not know how to handle them so effectively. On the one hand, they become the victims of their special disabilities, and whenever the ability that is lacking should be called into action in learning, their performance is no stronger than this weakest link in their learning chain. On the other hand, they tend to exploit what special talent they may have, such as auditory rote memory, and do so at the expense of other learning factors. A good case in point is learning by mere repetition many of the fundamental combinations in arithmetic, but later being unable to apply them correctly in problem-solving.

2. They tend to be inferior to average and bright pupils in motor control and muscular coördination. That popular belief is contrary to this fact arises from comparing slow children with children who are younger. Dull pupils are absent and tardy more often than others, more subject to illness, less able to conserve their strength and energy. Although they cannot do many physical tasks as well as bright and average pupils, it is desirable to train them as effectively as possible in these respects, since they will always be the ones who must work with their hands. Fortunately, they seem relatively more interested in the physical than the mental; but mere interest alone should not be mistaken for accomplishment.

3. Although some slow pupils possess very desirable personal and social qualities, the trend is toward the anti-social and the undesirable. They seem to be selfish and self-centered, probably because they prefer to deal with that which is most familiar; namely, themselves. It is probable that if they receive educational treatment according to their powers, some of their negative traits will not be manifested. This has been noted in classes for the mentally subnormal where their abilities are understood.

guards against a very weak spot in the theory and practice of democracy.

If education can achieve these goals for slow pupils, the millennium will be nearer at hand. The task is truly a great one, and those in school systems who are struggling with such children do not always get so much assistance from the centers of higher learning, with their facilities for research, as they feel should be available. This discrepancy becomes even more grievous when those who seemingly should aid us declare either that there is no such problem or that grouping is not the way to solve it.

4. Teacher Qualifications and Training

There seems to be prevalent an idea that the chief qualification of teachers of slow pupils is a sympathetic attitude. While a sympathetic understanding is desirable, it is a mistake to believe that these children need only sympathy or that they should be conscious of a sympathetic attitude toward them. The same erroneous idea prevails, among those who are little informed, with regard to the teaching of handicapped children. The crippled child or the blind child does not want sympathy; he wants to be understood and to have ways found to capitalize what talents he has.

The teacher of slow pupils should not look upon the achievements of the bright or the average as attainable goals for the slow, but should strive to stimulate her pupils to achieve up to the limits of their capacity. These goals will be better realized when adequate standards and courses of study are available, administered according to methods of teaching adapted to these groups.

The teacher of dull pupils should possess a great deal of patience in dealing with the slow rate of learning that her pupils will exhibit. She should be able to get her pupils to use what intelligence they have in overcoming any emotional traits and basic drives that tend to interfere with their progress. She should be painstaking and patient in drill, but yet show the way to more power through her knowledge of the strengths as well as the weaknesses of the slow.

These teachers should be acquainted with the psychology of all groups. In particular they should have a wide knowledge of the psychology of exceptional children of various types, such as the mentally subnormal, the emotionally and the physically handicapped, since many slow learners have the same traits as are found in these groups of children. Training in mental hygiene is especially important in

order to cope with the personal and social difficulties of slow pupils. These qualifications are, of course, important for all teachers, but they are especially so in the case of teachers of slow pupils.

III. THE EDUCATION OF AVERAGE PUPILS

1. Definition of Average Pupils

From fifty to sixty percent of all pupils fall within the average group. Their intelligence quotients tend to cluster around 100, ranging from 90 to 110. These average pupils constitute the rank and file of children and represent actually about one-half of the school population. For a description of the typical average child the reader is referred to the discussion in the introductory chapter.

2. Characteristic Qualities of Average Pupils

Intensive studies of slow pupils and of bright pupils, as well as of the extremely atypical groups, have thrown light indirectly upon many characteristics of average children. Yet in spite of this much less is really known about the psychology of the average child than is ordinarily supposed. These children have, in modified form, some of the tendencies of the bright and some of the dull, but their problems are not so striking or so well defined as are those of the other groups.

a. Quantitative Mental and Learning Factors. No table for the average similar to Tables I and II given for the bright and the dull will be reproduced here, for these will serve as a guide to the average mental levels of the average group by age and grade. The average child suffers some retardation because the difficulty of instructional materials often increases more rapidly than his mental growth. Historically the curriculum was established and standardized for bright pupils and, therefore, average pupils find these standards beyond them at many points.

There is probably as much need for a basic revision of the curriculum in terms of the mental-age growth of average-learning pupils as for the other groups. An example of such a revision is the one in arithmetic worked out by Washburne.¹ Anyone who is familiar with mental-age differences as revealed in individual psychological examinations, such as the Stanford-Binet Examination, realizes the influence of mental age on failure or success in basic facts and skills.

¹ Carleton Washburne. "Grade placement of arithmetic topics." *Twenty-Ninth Yearbook of this Society*, Part II, Chapter XIII, 1930, pp. 641-670.

b. Qualitative Mental and Learning Factors.

1. Average pupils have baffling combinations of simple and complex mental processes. At times they tend toward the simple and specific; at others, they veer toward the complex. When, in addition, they possess special mental talents and versatility, their teachers tend to forget that they are average children and make the mistake of dealing with them as they would with bright pupils. In like manner, when they may be associated with slow pupils, teachers are likely to believe them primarily endowed with simple processes. Research is needed to show the balance of these relationships, in what subjects they are prone to use the simple, in what subjects the complex processes, and how the two may be harmonized to produce efficient learning. Little is really known about the nature and extent of these subtle relations.

2. Both the concrete and the abstract make their appeal to average pupils. Any plan of education that aims to use exclusively the one or the other of these mental phases is doomed to disappointment and failure. Within this group there is a fine opportunity to start with the concrete, as with other groups, but to determine experimentally how far to proceed toward the abstract. The teacher should not be disappointed, however, if such pupils fall short of the achievement of bright pupils.

3. In like manner average pupils vary considerably in their ability to assimilate short-time or long-time units. They may be bored with a multiplicity and frequency of short units, or confused and discouraged by units that are too lengthy and time-consuming. Experimentation is needed to determine what is the exact nature of these tendencies and how they may be harmonized.

4. When properly directed, average pupils are able to attain a certain degree of self-criticism; when overpressed, they may lapse into the fatal indifference that too often characterizes slow pupils. They enjoy a certain amount of routine, but it must be tempered with moderation and mingled with other school interests in order to be of greatest benefit.

c. Other Characteristic Factors. In view of the range of special abilities and disabilities of average children, teachers should not make the mistake of allowing them to become the victims of their disabilities or the mistake of exploiting their special abilities. Too often such deviations are given undue weight in the general classification of these pupils into their proper group.

Effort should be made to maintain a nice balance between the mental and the motor functions. Either one may easily be overstressed at the expense of the other. The development and maintenance of the proper relation between these functions in average pupils is an educational problem of the first magnitude. There is a need for understanding the tangled tendencies of social and personality traits that may verge first toward one extreme, and then toward the other. The problem of finding and removing the causes of unfavorable tendencies and of stimulating the desirable ones through the curriculum and teaching methods has scarcely been touched upon in a comprehensive way.

3. Curriculum Objectives and Methods of Instruction for Average Pupils

In the light of these characteristics one may attempt suggestions for a curriculum appropriate to average pupils. In a certain sense the various objectives of education are supposed to apply to all children, particularly to average children. Upon close examination, however, it becomes evident that many of these idealistic objectives can be realized only by the very exceptional and gifted pupils. Education must avoid the error of setting up aims and devising methods that clearly are beyond the capacity of the average child. Four aspects of this problem may be mentioned.

1. The high school will probably become the college of the average person. It should be possible for all such persons to complete this goal. A few will go farther, but only by fortunate combinations of favorable factors, such as good health, ambition, good background, and economic plenty. The high school should, therefore, address itself to the problem of becoming the finishing school for most of this group. Since the early high school was chiefly a college-preparatory school for bright pupils, the problem of introducing this second major function and of making it of equal, or even of greater, importance than its earlier and traditional function is a difficult one.

2. At all levels of instruction, particularly in the high school, too much material or too many subjects should be avoided, lest average pupils become overtaxed. In school systems where both average and bright must be handled together, care must be taken that the average are not expected to reach attainments beyond their capacities. The solution of this problem is not found in the mere establishment of a minimum course in each department of instruction, for the total of these minimum courses may constitute too heavy a schedule for the

average. Some competent agency or group should coördinate and integrate all the various curricular elements involved.

3. The high-school courses offered should provide a reasonably well-balanced education for average pupils, but there should also be opportunity for specialization, so that any pupil possessing a special talent may develop it for his best economic, vocational, and avocational interests. To this end, a larger amount of diagnosis and educational and vocational guidance should be undertaken by the school.

4. In this group it is important to stress habits of good citizenship, as they may be interpreted and executed within the abilities of the average child. He should be trained so as not to feel inferior with respect to the superior, or superior with respect to the inferior. This group needs to be made more conscious of its own unique integrity, and to be proud of it.

4. Qualifications and Training of Teachers of Average Pupils

The qualifications of teachers for average pupils imply a much wider range of competence than has ordinarily been assumed. They should have a wide knowledge not only of the average child but also of the exceptional child, ranging from the mentally subnormal to the gifted, so that they may recognize evidences of subnormal and of gifted behavior in average pupils. They must be versatile enough to offer a wide variety of activities to the bright and at the same time also be able to shift quickly to the comparatively limited procedure for the slow. They must be ready either to act as a general director of class policies or to attend to intimate details in situations demanding active participation and explanation by the teacher. They should be able to shift from short-time to long-time projects, or vice versa, as the occasion and the group demand, and to keep a balance between the abstract and the concrete suitable to the characteristics of the group. They should understand the balance between the mental and the physical as it applies in different degrees to the bright and the slow, as well as the confusing gradations of these factors in their own average groups.

If these qualifications actually are to be found in teachers and the necessary information is really acquired, then the training of teachers for average pupils is a truly comprehensive and ambitious program. It involves a wide knowledge of child psychology in all of its ramifications, a wide range of information as to subject matter, and a versatile approach to the psychology of learning. It is a hopeful symptom that the minimal requirement of two years' normal training is gradually

being raised to at least a four-year college course, and this may eventually be followed by a master's degree, as is now being required in some systems at the high-school level. Even the latter requirement must be carefully planned if there is to be a balance between subjects of general culture, specific training for one or more fields of instruction, and an adequate knowledge of child psychology in its larger meaning. Progress will be made in teacher training when school administrators realize how complicated and intricate are the factors in learning, and demand teachers who are adequately trained in all the major phases indicated above.

IV. CURRICULUM ADJUSTMENTS FOR ABILITY GROUPS

There are some who believe that the problems of subject matter and method are inseparable, and that the type of subject matter largely determines the method. For example, in a certain sense the methods of teaching practical arts are probably unique to that subject and very different from the methods of teaching history. In this respect subject matter does seem to influence method. However, the differentiations of method for bright and for slow pupils seem to be much greater than differentiations due to content.¹

It would be very difficult to summarize in a limited space the various types of curriculum differentiations.² Only a few sample lessons, or units, will be sketched here in order to show their nature. In arithmetic³ the following differences between ability groups have been noted:

X, Y, Z DIFFERENCES

Recognition was first given to individual differences by changing the grouping of pupils. In so doing, attempts were made to bring together groups of about the same mental ability. This plan did not solve the problem, because the adjustment of instructional material to the levels of ability had not been made; material adapted to the needs of the higher group could not be used effectively with the lower group and vice versa.

A study of the pupil responses to instructional material revealed some striking differences in the mental make-up of the different

¹ Harry J. Baker. *Op. cit.*

² In the supplement to this section will be found a list of courses of study that were designed to provide for individual and group differences.

³ C. Louis Thiele and Irene Sauble. *Arithmetic Developmental Lessons* (Detroit Board of Education, 1925), p. 8.

groups. The dull pupils were found to differ from the brighter ones mainly in that:

1. They have not the same mastery of previous learning; therefore, they are likely to require more review work.
2. Their interest span is shorter; they need shorter units of work.
3. They cannot carry many things in mind at one time; learning situations must not contain too many elements in number or kind.
4. They do not comprehend or see the significance of things so well; facts and questions must be more direct and specific.
5. They cannot make the same mental associations or analogies; very few facts or conditions can be omitted in the statement of a unit of work.
6. They cannot organize ideas and facts so well; situations must either require little organization or be organized for them.
7. They take shorter steps in their thinking; therefore, explanations must be more explicit.
8. They do not transfer ability from one situation to another so well; more type situations must be met and, even then, they may not form the larger generalizations or conclusions.

It is not intended that the foregoing observations should lead anyone to conclude that duller pupils cannot profit by the right kind of teaching situations. The problem at hand is one of adapting units of work to the different levels with the idea of developing to the fullest the native ability of all.

Another illustration, also in arithmetic, is taken from the Cleveland course of study.¹

COURSE OF STUDY IN ARITHMETIC

Third Grade — B Section

X-Group	Y-Group	Z-Group
A. Counting, beginning with any intermediate number, by 2's, 5's, and 10's to 100. By 3's and 4's to 50	A. Counting, beginning with any intermediate number, by 2's, 5's, and 10's to 100, and 3's to 30	A. Counting by 2's, 5's, and 10's to 100; 3's to 30
B. Addition and subtraction as follows:	B. Addition and subtraction as follows:	B. Addition and subtraction as follows:

¹ Central Committee. *Tentative Course of Study in Arithmetic, Kindergarten and Grades I-IV* (Cleveland Public Schools), pp. 64-65.

X-Group

1. The hundred fundamental combinations

2. Addition by endings, as

$$\begin{array}{r} 8 \quad 18 \quad 28 \quad 38 \\ 7 \quad 7 \quad 7 \quad 7 \text{ etc.} \\ \hline \end{array}$$

3. One-, two-, and three-column additions to five addends

4. Subtraction with borrowing, two- and three-place numbers

GOAL — By the end of the third grade the pupil should be able to subtract as follows:

$$\begin{array}{r} 420 \quad 8 \text{ from } 10 = 2 \\ 128 \quad 2 \text{ from } 11 = 9 \\ \hline 292 \quad 1 \text{ from } 3 = 2 \end{array}$$

5. Checking addition by adding in reverse order

6. Checking subtraction by addition

7. Adding and subtracting dollars and cents

Y-Group

1. The hundred fundamental combinations

Complete combinations not taught in Grade II

$$\begin{array}{r} 6 \quad 7 \quad 8 \quad 8 \quad 9 \quad 9 \quad 9 \quad 9 \\ 7 \quad 8 \quad 5 \quad 6 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \\ \hline \end{array}$$

2. Addition by endings

$$\begin{array}{r} 8 \quad 18 \quad 28 \quad 38 \\ 7 \quad 7 \quad 7 \quad 7 \text{ etc.} \\ \hline \end{array}$$

3. One-, two-, and three-column additions to four addends

4. Subtraction without borrowing, two- and three-place numbers

GOAL — By the end of the third grade the pupil should be able to subtract as follows:

$$\begin{array}{r} 429 \quad 8 \text{ from } 9 = 1 \\ 118 \quad 1 \text{ from } 2 = 1 \\ \hline 311 \quad 1 \text{ from } 4 = 3 \end{array}$$

5. Checking addition by adding in reverse order

6. Checking subtraction by addition

7. Adding and subtracting dollars and cents

Z-Group

1. Combinations not taught in 2A, as follows:

$$\begin{array}{r} 8 \quad 9 \quad 6 \quad 7 \quad 8 \quad 9 \quad 7 \quad 8 \\ 3 \quad 3 \quad 4 \quad 4 \quad 4 \quad 4 \quad 5 \quad 5 \\ \hline 9 \quad 6 \quad 6 \quad 9 \quad 7 \quad 7 \quad 8 \\ 5 \quad 7 \quad 8 \quad 6 \quad 8 \quad 9 \quad 9 \quad \hline \end{array}$$

2. The hundred fundamental combinations

3. Addition by endings

$$\begin{array}{r} 8 \quad 18 \quad 28 \quad 38 \\ 7 \quad 7 \quad 7 \quad 7 \text{ etc.} \\ \hline \end{array}$$

4. One-, two-, and three-column additions to three addends

5. Subtraction without borrowing, two- and three-place numbers

GOAL — By the end of the third grade the pupil should be able to subtract as follows:

$$\begin{array}{r} 435 \quad 3 \text{ from } 5 = 2 \\ 123 \quad 2 \text{ from } 3 = 1 \\ \hline 312 \quad 1 \text{ from } 4 = 3 \end{array}$$

6. Checking addition by adding in reverse order

7. Checking subtraction by addition

X-Group	Y-Group	Z-Group
		8. Adding and subtracting dollars and cents
C. Multiplication and division as follows:	C. Multiplication and division as follows:	C. Multiplication and division as follows:
1. All products of 0 to 5 inclusive, times 0 to 10 inclusive, and reverse; all quotients without remainders resulting from dividing 1 to 45 by 1 to 5	1. All products of 0 to 5 inclusive, times 0 to 10 inclusive, and reverse; all quotients without remainders resulting from dividing 1 to 45 by 1 to 5	1. Tables of 1's, 2's, 5's, 10's and the division facts
2. Multiplication of two- and three-place numbers by 1 to 5	2. Multiplication of two- and three-place numbers by 1 to 5	2. Multiplication of two- and three-place numbers by 1, 2, and 5
3. Short division, three-place numbers by 2, 3, 4, and 5, no carrying	3. Checking multiplication by repetition	3. Checking multiplication by repetition
4. Checking multiplication by repetition		
5. Checking division by multiplication		
D. Fractional parts, as follows:	D. Fractional parts, as follows:	D. Fractional parts, as follows:
1. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$ of an object or a small group of objects	1. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$ of an object or a small group of objects	1. $\frac{1}{2}$ and $\frac{1}{5}$ of an object or a small group of objects

In the Philadelphia school system, the Division of Educational Research under Dr. Boyer has issued a number of reports and syllabi either in printed or mimeographed form dealing with adjustments to individual differences. For the elementary school one mimeographed syllabus deals with minimum courses of study in history, Grades I and II, and another is devoted to geography, Grades III to VI. In the latter

an outline is presented for the same topic with a different presentation for the three groups. The less able pupils are given a very simple aim, the approach to the topic in a very specific manner, and the development of the lesson is taken from the immediate experiences of children. Four simple test questions are provided in the discussion of a typical lesson dealing with hills. The more able students have additional readings, oral reports, illustrative material, field trips, committees or sight-seeing tours to study the landscape, collections of pictures, and twelve test questions covering the entire subject. In 1930, there was issued a supplement to the Course of Study in History for Grades III to VI called a "Modified Syllabus" for classes of low ability. Each unit of work is outlined under four headings: Aim, Subject Matter, Essential Knowledge and Attitudes, and Vocabulary. Emphasis is placed on both appreciation and the perfection of study habits.

At the high-school level there is a mimeographed report (Bulletin No. 274, "Courses of Study Adjustments for Pupils of High and Low Ability"). All the main subjects of the high-school curriculum are presented. The adjustments suggested for mathematics are reproduced here:

MATHEMATICS ADJUSTMENTS FOR PUPILS WITH HIGH ABILITY

Grades IX-XII: Adjustments for pupils of high ability in mathematics should be based upon qualitative as well as quantitative differences in assignments. Creative work and increased facility in thinking are the objectives rather than mechanical covering of quantities of problems. Facts from the history of mathematics and applications to science, engineering, business, art, and vocations should be presented. In geometry emphasize: (1) 'Generalization,' unifying related special theorems into one general theorem. (2) Extension of the use of loci. (3) The selection of exercises that have high value from the viewpoint of application, pupil interest, and future usefulness. (4) Stimulation of discovery, by well-selected, progressive exercises that lead to a worth-while fact or principle. In algebra (3) and (4), additional subject matter may be selected from the determinant solution of linear systems; from a more extensive treatment of the theory of quadratics; from ratio and variation, series, and the binomial theorem; from synthetic division; and from equations and problems of greater conceptual difficulty pertaining to any topic of the course.

Grades VII and VIII: The common course should be enriched by practical problems of greater detail that require more steps in reasoning. Many more applications of graphs, formulas, and rules to the various phases of life situations should be stressed.

MATHEMATICS ADJUSTMENTS FOR PUPILS OF LOW ABILITY

Grades IX-XII: The course of study, with the elimination of optional material, provides reduced content in algebra. In ninth-grade algebra, problems should be restricted to those leading to simple equations. More time should be spent on drill in fundamental processes. In geometry, postulate theorems proved by methods of superposition, the inequality theorems, and concurrent line theorems. Originals should be restricted to those requiring only one or two steps and those requiring for solution only simple steps in algebra and arithmetic. No reproduction of unstarred (College Entrance Board) proofs should be required of the slowest pupils. There should be more exercises involving merely application of theorems and more construction problems. There should be more dependence upon diagrammatic presentation in the development of material.

Grades VII and VIII: The emphasis should be upon drill work in fundamental processes and problems of one step. Longer problems should be broken up into shorter one-step problems with simple numbers and very concrete material. More attention should be given to each step of development in presenting new topics. Vocabulary should be simplified as much as possible and abstractions avoided. Probably it will be necessary to reteach the fundamentals of previous grades in the subject through diagnosis and remedial drill. Optional requirements, given in the course, should be omitted. The more capable pupils should be encouraged to aid the slower. Avoid complicated problems.

In the subjects of geometry, English, modern and foreign languages, Latin, and science, printed courses of study make reference to various types of adjustment for individual differences. In the suggestions for geometry, pupils of limited ability are restricted to certain specified propositions. In English, the specific objectives are to be covered by slow children, the chief difference being in the greater simplicity of subjects and in the requirement of smaller units. In science there are certain optional related experiments indicated, as 'Experiment 9A, 9B,' etc., where Experiment No. 9 is a minimal requirement for all groups.

The preparation of curricular materials for ability groups has been confined largely to city school systems. In part this may be due to the fact that the problem is most acute and best understood here.

Further discussion of adaptations of curricula to individual differences will be found in the two chapters that follow.

CHAPTER IX

DIFFERENTIATION OF CURRICULUM PRACTICES AND INSTRUCTION IN ELEMENTARY SCHOOLS

HENRY HARAP
Associate Professor of Education
School of Education, Western Reserve University
Cleveland, Ohio

I. INDIVIDUAL DIFFERENCES IN CURRICULUM TREATISES

Only a few of the fundamental books in curriculum-making discuss the subject of individual differences extensively. Franklin Bobbitt¹ pointed out that recognition of individual differences was fundamental in curriculum-making. The limited abilities of the backward have to be determined and a low standard of achievement in these limited abilities has to be required. The activities of the several ability groups must differ and they must be set forth in separate curricula. Contrary to the usual practice, Bobbitt suggested that we must begin with the curriculum for the most advanced group; for the average group we must limit and modify the experiences of the gifted group; and for the subaverage group, the curriculum of the average group must be reduced and modified.

The Commission on the Curriculum in its Third Yearbook² laid down fundamental principles of differentiating curricula to fit individual needs. Recognizing a general core for all children, the Commission recommended that the content, method, and time allotment vary with individual differences. Curriculum-making in the main has to do with children of average ability, but it must be supplemented with a program for slow and rapid learners. The curriculum for the slow pupils should provide for extensive drill, and it should be exceedingly practical. The curriculum for the gifted group should be enriched by wider and richer materials of study. Reference was also made to the

¹ *How to Make a Curriculum* (Boston: Houghton Mifflin, 1924), pp. 41-42, 61-62.

² *Research in Constructing the Elementary-School Curriculum* (Third Yearbook, Department of Superintendence of the National Education Association, 1925), pp. 17-25.

individualization of learning, and principles were laid down to govern curriculum-making for individual learning.

II. PROVISION FOR INDIVIDUAL DIFFERENCES AS REVEALED IN SURVEYS

An analysis of 242 courses of study published in 1929¹ showed that 22, or 9 percent of the total, made some provision for individual differences. At that time workbooks and other self-instructional materials began to appear. Two years later, of 317 courses of study analyzed, 66, or 21 percent, made some provision for individual differences, showing an increasing tendency to adapt instruction to individuals during the interval.

In the last two years provision for individual differences in courses of study showed a marked decline. Only 10 percent of the 300 courses of study contain any suggestions for adapting instruction to individuals. The most common suggested techniques were the instruction sheet and extra assignments for the bright pupils.

It is difficult to explain the decline in interest in individual differences as reflected in the contents of the courses of study. We would hazard three explanations: (1) ability grouping may be so commonly accepted in the school system that reference to it in the course of study may not be necessary; (2) ability grouping may be understood as an administrative procedure rather than as a curriculum problem; (3) activity curricula, which have increased in the last two years, may be assumed to solve the problem of individual differences.

Trillingham,² who secured data from one hundred cities by questionnaire, reports that 16 percent of the cities produce different courses of study for various mental levels. Eighty percent of the cities report that their courses of study contain suggested variations for pupils of different ability. While this is an exaggeration of the actual conditions as revealed by a survey of courses of study, it shows, at least, that relatively few cities produce different curricula for different ability groups.

A survey of intermediate grades in 126 cities of more than 30,000

¹ H. Harap. "Biennial surveys of courses of study." *Journal of Educational Research*, 21: February, 1930, 109-119; 26: September, 1932, 46-55; 28: May, 1935, 641-656.

² C. C. Trillingham. *The Organization and Administration of Curriculum Programs* (Southern California Educational Monographs, 1933-34 Series, Number 4, 1934), p. 50.

population showed that 89 school systems, or about three-fourths, reported that they were grouping their pupils according to ability.¹ In thirty-one cities, ability groups were different in different subjects. Separate groups were formed most commonly in reading and arithmetic. Twelve cities provided for vertical grouping, whereby pupils from several grades having the same difficulties met together. Seventy-four cities reported that they had individualized instruction to some degree. Individual assignment sheets prepared by the teacher or curriculum committee were reported by thirty cities.

III. COURSES OF STUDY FOR ABILITY GROUPS

It is obvious from the surveys just reported that ability grouping is the most common method of adjusting learning to individual differences. In the printed and mimeographed courses of study this practice is indicated by suggested adjustments for slow-learning and rapid-learning pupils.

Despite the fact that ability grouping is commonplace, there are only a few recent courses of study that suggest specifically what adjustments need to be made for 'slow' and 'rapid' groups. Most frequently the curriculum bulletin suggests omissions for subaverage and additions for superaverage pupils; this adjustment in most cases is limited to informational content; in fewer cases, changes in procedure are proposed. Courses in health differentiate for groups that differ in physical condition. The New York State course in science differentiates for city and rural children in the few cases where this is necessary.

The Berkeley Course of Study in Social Studies² states that the responsibility of adapting to the needs of her class is left to the teacher. For the rapid-learning groups enriched reading and activities are suggested. The Cleveland Geography Course contains suggested omissions of activities and information for average and backward pupils. The Cleveland Arithmetic Course of Study provides for three quantitative levels of attainment in terms of the minimal number of processes to be mastered by each ability group in each grade. For example, in Grade II, which is devoted to the study of the addition and subtraction of

¹ B. Goodykoontz. "One phase of supervision in progressive schools." *Educational Method*, 11: April, 1932, 404-409.

² Hereafter, citations to courses of study listed in the supplement at the end of this section will not be made in the footnotes unless reference is made to a particular page or pages.

integers, the minimal requirement for the X, Y, and Z groups, respectively, is the completion of 17, 13, and 9 steps.¹

IV. VARYING PROCEDURES FOR SLOW-LEARNING AND RAPID-LEARNING GROUPS

Only two recent examples of the presentation of two separate procedures for slow- and rapid-learning pupils could be located, both produced by the same school system. The Baltimore courses in geography and history present illustrative lessons to show how a unit should be taught to pupils above average and pupils below average.

For each unit of the course there is a section containing suggestions for differentiation of informational content and activities. In abridged form we present here (pp. 166-167) the basic characteristics of the two groups of children and the suggested instructional adjustments for them as given in the Baltimore geography course of study.²

V. SPECIAL COURSES OF STUDY FOR RETARDED CHILDREN

A search for special courses of study revealed eleven publications that have appeared since 1929. Four of the eleven monographs pertain to language for the slow groups, with particular emphasis on reading. Seven bulletins deal with ungraded classes. In general they embody a procedure based upon the common characteristics of slow learners. In the Denver Course of Study for Arithmetic and Reading for the Slow-Learning Pupils, it is suggested that the regular course should be adjusted to the slow-learning child by means of selecting the simplest processes or informational content, by greater emphasis upon concrete learning, and by setting up simplified standards of attainment.

The Cleveland Course of Study in Reading (for backward pupils) is based on the principle that it must differ from the average course in kind as well as in amount. Instead of the usual placement to conform to the several grades, sixteen stages of progress are set up. The pupil or group of pupils is expected to pass from one level to the next as soon as ready.

The Detroit Public School System has developed a special course in literature for slow-learning groups. In general, a story is considered as a basic literary experience. For the slow-learning child, the vocabu-

¹ Cleveland Public Schools. *Objectives for Work Sheets in Arithmetic. Revised Minimum Essentials for Grades and Ability Groups* (September, 1932), 1 page.

² *Geography for Grades III to VI* (Baltimore, Maryland, Public Schools, 1931), pp. 32-35.

lary of the literary masterpieces was simplified, and in some cases new stories were composed to meet his special need. The suggestions in the monograph include (1) the procedure for a large and relatively homogeneous group, (2) the procedure for a small group, (3) a completely individualized procedure. The small groups are based upon reading levels or tastes. Each group works with its own literary selection and comes together to share experiences. In the completely individualized program, each child reads what he has selected to meet his own needs and capacities. Time is provided for the exchange of experiences.

VI. INDIVIDUALIZED LEARNING

Individualized learning by means of self-instructional materials is common in the public schools of the nation, but the evidence in curriculum bulletins is very limited. In the immediate collection at hand, eight samples were found that are listed elsewhere. The surveys recorded by Trillingham and by Goodykoontz would indicate that school systems are using workbooks put on the market by textbook publishers.

The school system that makes probably the most extensive use of instruction sheets is Winnetka. Most of the materials used there were prepared locally and have been published for general distribution. Since they are not fundamentally different from the huge output of commercial workbooks, they will not be singled out for special discussion. It should be pointed out, however, that there are really three separate basic instruments in the Winnetka technique: (1) the instruction sheet, (2) the test, and (3) the practice material.

The workbook, which is the *sine qua non* of individualized learning, is a series of guide sheets containing directions for individual study. Because the use of workbooks depends upon the ability to read, these learning tools are not commonly found below the third grade. Unlike the ordinary course of study, the directions in the workbook are addressed to the pupil. A workbook may be used independently, but frequently it is prepared to accompany a specific text. Usually it is printed with perforations to enable the pupil to tear out a completed exercise. Some workbooks are very little more than practice pads; others contain suggestions for varied individual experiences. Sometimes these books contain informational content, but in any case the pupil is directed to one or more sources of information. Occasionally the workbook includes a chart on which the pupil may record his own progress or score.

To illustrate, it is the policy of the Hamtramck, Michigan, schools

*SUGGESTIONS FOR ADJUSTMENT OF INSTRUCTION TO ABILITY GROUPS PROPOSED
IN BALTIMORE GEOGRAPHY BULLETIN*

I. SCOPE OF CONTENT AND PUPIL ACTIVITY

PUPILS ABOVE AVERAGE		PUPILS BELOW AVERAGE	
<i>Typical Characteristics</i>	<i>Suggested Teaching Adjustments</i>	<i>Typical Characteristics</i>	<i>Suggested Teaching Adjustments</i>
1. Broad and versatile interests.	1. Units wide in scope. Related topics in other subjects.	1. Narrow range of interests.	1. Few basic elements.
2. Long interest span. Tenacity of purpose.	2. Extended units. Little external motivation.	2. Short interest span.	2. Many specific questions. Many short simple activities.
3. Mental independence and resourcefulness.	3. Initiation of problems. Independent research.	3. Limited powers of self-direction.	3. Lead pupils by suggestion.
4. Quick reaction time. Easy assimilation.	4. Much related learning. Much independent drill.	4. Slow reaction time. Limited power of assimilation.	4. One new difficulty at a time. Follow by immediate drill.
5. Work with abstractions. Ability to generalize.	5. Provide opportunities for reasoning and judgment, discrimination. Lead pupils to discover new understandings.	5. Limited ability to work with abstractions and to generalize.	5. Development by concrete details.
6. Independence in self-evaluation.	6. Opportunity for self-initiated drill and correction.	6. Inability in self-criticism.	6. Direct attention to errors. Provide corrective help.

II. PRESENTATION OF NEW MATERIAL

III. DIRECTED STUDY ACTIVITIES

- | | | | |
|---|--|---|--|
| 7. Long attention span.
Quick reaction time.
Easy assimilation.
Mental independence. | 7. Long study periods.
Long discussion periods.
Extra assignments. | 7. Short attention span.
Slow reaction time.
Limited mental initiative. | 7. Broken supervised study plan.
Test directly for information.
Simple fact questions. |
| 8. Ability to discriminate.
Superior reading ability. | 8. Use several sources.
Let pupils select additional references. | 8. Limited ability to discriminate.
Poor reading ability. | 8. Materially adapted to vocabulary.
Make references explicit.
Simplify reading material.
Give help with difficult words. |

IV. INDEPENDENT STUDY ACTIVITIES

- | | | | |
|---|--|--|--|
| 9. Superior reading ability.
Mental Initiative.
Wide interests. | 9. Individual responsibility for special reports growing out of extensive reading.
Encourage use of source materials in school, library, and community. | 9. Poor reading ability.
Limited discrimination and self-direction. | 9. Use simple source material.
Select simple references.
Use visual materials.
Use questions. |
|---|--|--|--|

V. CREATIVE ACTIVITIES

- | | | | |
|--|---|---|---|
| 10. Originality and initiative. | 10. Encourage to do strictly creative work. | 10. Imitative capacities. | 10. Permit the use of models and concrete examples. |
| 11. Versatile interests.
Sustained attention. | 11. Activities broad in scope.
Provide for individual talents. | 11. Narrow range of interests.
Limited attention span. | 11. Use activities narrow in scope. |

to individualize instruction in situations in which it is reasonable to do so.¹ To aid the teacher in the use of instruction sheets a special bulletin was prepared. The rôle of the teacher is to assemble and prepare materials, to stimulate the class, to furnish guidance, and to carry out all the related duties. A basic assignment is completed by the whole class. When situations require group or class action, the children are called together. Creative projects are provided for the fast-learning pupils. Individual progress is determined by means of a check sheet and recorded on a wall chart. The accomplishment of the goals is measured by means of tests.

From the point of view of the conception of learning that characterizes much current curriculum-making, the indiscriminate use of instruction sheets and workbooks is particularly open to criticism. As formal individualized learning has developed thus far, it is predominantly verbal in character. It is conspicuously lacking in varied, active, and socially real experiences. Very little opportunity is provided for planning and directing activities. Usually, it is limited to a series of fixed directions without opportunity for judgment, choice, or individual expression. The number of real problem situations is reduced to a minimum. An instruction sheet rarely possesses the unity and coherence of lifelike situations.

VII. DIAGNOSIS AND REMEDIAL WORK

In the fields of reading and arithmetic, individualized corrective materials have been developed to accompany the customary plans of grouping children. We have been able to isolate nine courses of study in arithmetic and six courses of study in reading that make more or less definite provision for diagnosis and remedial exercises.

In reading, the greatest problem is teaching the slow group. The program of diagnosis and remediation is concerned with the child of normal intelligence who has developed certain specific reading difficulties. The diagnosis of specific reading disabilities is usually preceded by psychological and physical examination and a study of the child's environmental influences. The reading disabilities are isolated by means of comprehension tests, vocabulary tests, and teachers' judgments. For the guidance of the teacher, the Minneapolis Curriculum Department diagnosed the reading difficulties of 83 pupils.² The analy-

¹ M. R. Keyworth. *Suggested Classroom Techniques for Individualization of Instruction*. 40 pp., mimeographed, 1933.

² Minneapolis Public Schools. *Reading, Grades 1-3* (1931), pp. 132-136.

sis is presented in three columns under the headings of *evidences of deficiency*, *diagnosis*, and *remedial suggestions*, after the pattern set by the *Twenty-Fourth Yearbook* of this Society. By means of this material the teacher can readily detect the deficiency, make the diagnosis, and make the necessary correction. Remedial instruction is given individually to pupils at a time usually set aside for this purpose.

The diagnostic program in arithmetic is usually carried on by means of the common tests on the fundamental processes, arranged in order of progressive difficulty. When this does not reveal the specific disability, the pupil is asked to make the computation aloud. The Denver Course of Study¹ lists twenty-six of the most common disabilities in the four fundamental processes that were compiled by the curriculum department. This summary of common errors enables the classroom teacher to diagnose the pupils' specific weaknesses. It is suggested that the class be organized so that remedial exercises are individualized. The Baltimore Course of Study gives a much more elaborate analysis of all the steps in integers, fractions, and decimals.² After each step the possible error is given as well as the remedial procedure. The Kansas City Course of Study presents a compilation of outstanding difficulties of pupils as reported by the elementary teachers.³ The thirty most common difficulties are presented in three parallel columns under heads (1) difficulty, (2) probable cause, and (3) suggested remedy. Thus, the *zero* difficulty in the first grade is due to lack of specific training in zero combinations and this may be remedied by concrete experiences such as games.

VIII. INDIVIDUAL DIFFERENCES AND ACTIVITY CURRICULA

Activity curricula invariably recognize the importance of adapting learning procedures to individual differences. This, however, is not accomplished through the medium of formal grouping of pupils on the basis of intelligence but through the opportunity of selecting appropriate activities from varied experiences. The division of labor on the unit is based upon the special interests of the individual pupils.

The basis of individual choice is illustrated by a unit on boats reported by the Lincoln School.⁴ The pupil has a choice among such ac-

¹ Denver Public Schools. "Arithmetic, Grades 3-6." *Course of Study Monograph No. 4* (1933), pp. 29-33.

² Baltimore Public Schools. *Arithmetic, Grades 4-6* (1931), pp. 17-89.

³ Kansas City Public Schools. *Arithmetic for Grades 1-4* (1928), pp. 22-32.

⁴ J. S. Tippet and Others. *Curriculum-Making in an Elementary School* (Boston: Ginn and Company, 1927), pp. 33-34.

tivities as making boats of wood and clay, visiting boats, writing stories and poems about ships, making a booklet of stories or trips, making a play about sailors, studying water displacement, and so on. In addition, this school provides a daily period for free work. During this period the child has complete freedom to choose what he will do. This compensates for the limited range of experiences provided by some units of work.

In schools of this type the primary consideration in the formation of learning groups is social adjustment. Each child is assigned to the class in which he is likely to make the most complete personal adaptation. The basis of grouping pupils is not intellectual. "Any classification scheme used in an activity school must have in view the social adjustment of the pupils, not their adjustment to amount to be learned."¹

The emphasis on social adjustment is also found in the Detroit Course of Study in Social Science.² "One method of solving the problem of individual differences is to provide many and various group activities. In a varied activity program, the individual can best adjust himself to the group and find out for himself what he is able to contribute without being made to feel his inferiority."

At the Children's School of the National College of Education, the educational dislocation of the pupil is corrected by means of achievement tests given at intervals, which are followed by individual remedial work for the pupils who fall below the norm.³ A similar procedure is suggested in a California course of study. "The activity curriculum presents the finest opportunity for individual adaptations, while maintaining the integrity of a desirable social grouping. . . . In the child-centered situation, the teacher has intervals available for clearing up individual difficulties which may be obstacles to development."⁴

In the activity program the opportunities for expression of individual differences are considered to be the same as are found in life. The direction that a given unit takes depends upon the interests of the pupils. When the pupils come together to pool their experiences, each

¹ Territory of Hawaii. *Activity Program for the Primary Grades* (Department of Public Instruction, Territory of Hawaii, 1930), p. 203.

² Detroit Public Schools. *Course of Study in Social Science, Grades 1-6* (1932), p. 16.

³ C. B. Baker and Others. *Curriculum Records of the Children's School* (National College of Education, 1932), pp. 453-454.

⁴ State of California. *Suggested Course of Study in Oral and Written Expression for Elementary Schools* (1933).

contributes in accordance with his ability and interests. The activities of life are varied and the behavior of individuals is varied. In the activity program the aim is to approximate this condition.¹

The activity as a stimulus to the slow learner is suggested in the Kansas City Course of Study in English thus: "The activity form of procedure, perhaps more than any other, presents opportunities for taking care of individual tastes and needs. It stimulates even the slowest child to invent, to think, and to express himself."²

In general, then, the activity program emphasizes the importance of social rather than intellectual grouping. Individual differences are recognized by providing choices among a variety of activities. The adaptation of individuals in school situations is felt to approximate the conditions of life. The slow learner is especially stimulated by learning experiences that are varied and real. The individual difficulties are cared for during special periods reserved for this purpose.

IX. HUMANIZING THE CURRICULUM AS A SOLUTION

Many of the practices of classification and differentiation of learning are based on a curriculum of conventional subjects. From this point of view, there is an imposing array of evidence showing differences in ability. It has not been demonstrated that the differences are as great or as significant when a program is based upon the social life of the young. Those who have had experience with activity curricula based upon real and meaningful situations report the awakening of backward pupils from apathy and disinterest.

Our own limited experimentation seems to indicate that both backward and bright pupils learn more readily in situations that are socially real and meaningful. In such learning situations the purpose and the activity are meaningful, and the child has a feeling of being at ease. He has many first-hand experiences with familiar materials.

In one arithmetic class we combined a group of ungraded children having an average intelligence quotient of 78 with a regular group of pupils with an intelligence quotient of 98. The classroom had practically no permanent learning equipment and supplies except movable desks. Materials required by the units were improvised and assembled when they became necessary. The experiences were real and varied, including keeping accounts, making talks to classes, comparing evaporated with whole milk, making graphs, selecting a recipe,

¹ J. L. Meriam. *Child Life and the Curriculum* (Yonkers: World Book Company, 1920), Chapter X.

² Kansas City Public Schools. *Course of Study in English for Grades 1-6* (1932).

making cocoa, sampling tooth powders, calculating relative costs, selling glacé apples, figuring profits, and so on. No external drill or practice was introduced.

The children were given an opportunity to communicate and associate freely as the need arose. They were given abundant opportunities for self-expression and critical judgment. Every unit had its logical and natural close. Much of the time ordinarily devoted to drill and problem-solving was devoted to construction, manipulation, and other activities.

At the end of the first semester, the regular group attained a mastery of 94 percent as compared with mastery of 73 percent attained by the ungraded group. At the end of one year the regular group increased its degree of mastery to 95 percent while the ungraded group increased its degree of mastery to 77 percent.

On the basis of our experience, the backward child would probably do a little better with shorter units permitting somewhat more frequent review of arithmetical processes.

The activity program has contributed much to the humanizing of the curriculum; but at the same time, in our judgment, it has shown us a way of stimulating both the slow and the rapid learner. In this discussion the possibilities of ability grouping may have been underestimated. The one thing, however, that we desire to emphasize is that no amount of classification will be of much worth unless the learning program for children is first made real and meaningful, until the learning activities are lifelike and varied, and until the learning environment is stimulating and satisfying. Then, and then only, will experiments with ability grouping begin to yield whatever returns are possible.

CHAPTER X

DIFFERENTIATION OF CURRICULUM PRACTICES AND TEACHING METHODS IN HIGH SCHOOLS

L. THOMAS HOPKINS
Associate Professor of Education
Teachers College, Columbia University, New York City

I. HOMOGENEOUS GROUPING AND ABILITY GROUPING

Until recently junior and senior high schools made no distinction between the terms 'homogeneous' groupings and 'ability' groupings. They were used to mean any type of classification of students for the promotion of better learning in traditional subjects. Within the past three years a differentiated meaning between these terms has become current. 'Homogeneous grouping' is now being used to refer more to the grouping of pupils according to their interests, purposes, needs, or objectives, whereas 'ability grouping' refers more to the placement of pupils in sections in required subjects for the purpose of promoting better teaching.

This distinction had its beginnings in five very definite recent movements in secondary education. These are (1) a gradual decrease in the specific subjects required for a secondary-school diploma and an increase in the number of elective subjects allowed, (2) a gradual reduction in the emphasis upon intelligence and achievement testing and a gradual increase in attention to other basic factors in the learning process, such as pupil interests, purposes, and needs, (3) the gradual introduction of extracurricular activities in the form of clubs, societies, student organizations, and the like, (4) the rapid increase in secondary-school enrollment, thereby changing the school population from a group selected as to intelligence, social background, economic status, and interests to one as heterogeneous in all of these factors as the adult population in the community in which the secondary school is located, (5) the gradual movement from minimal requirements for all pupils to variable requirements for individuals and groups.

More specifically, homogeneous grouping tends to bring together in secondary-school subjects or activities only those pupils who have definite reasons for undertaking them in terms of interests, immediate

goals, or long-time educational objectives. On this basis, only students with an immediate interest in, or desire to pursue, mathematics for a future definite need, such as preparation for college, would be found in an advanced mathematics class. Only those who enjoy plays would be in a drama group, and only those interested in, or finding some specific need in, shorthand would be studying that subject.

The broadening concept of the curriculum to include all the actual experiences that children have both in and out of school under the guidance of teachers has done much to clarify this distinction. Secondary-school clubs and many other extracurricular activities represent homogeneous groups interested in exploring various phases of life activities. In these groups ability appears as a secondary factor, since interests, needs, and wants are a product of the intelligence and social environment of pupils, those having like background in these two characteristics tending to develop common interests and purposes in life. The developing movement toward organizing the secondary-school curriculum in broad fields rather than in separate subjects has also given momentum toward homogeneous grouping. Within the broad fields, pupils are grouped according to their interest in aspects of the area explored. While this also has its correlative ability factor, the latter is of less importance.

Ability grouping now appears in the secondary-school curriculum in a number of ways: (1) in more or less permanent classification of pupils in required subjects in accordance with predicted ability to learn required subject matter in fields such as English and social studies, which are the two most frequent requirements, (2) in more or less temporary groupings of pupils in required or elective subjects, better to meet the needs in learning some important aspect, such as practice in library techniques, in the organization of materials in social studies or English, in the use of the formula in algebra, or in utilizing the principles of perspective in art, (3) in delegating to the best qualified individuals the responsibility for undertaking certain aspects of a school-community enterprise, such as is found in the many kinds of work incident to the production of a school play.

In homogeneous grouping frequent reference is made to the attitude of the learner. When he is following his own interests, wants, or needs, he is building dispositions toward learning, the school, life, which react favorably in promoting subsequent learning. In ability grouping, too little reference has been made to the attitudes and dispositions of the individual, and perhaps too much stress has been placed upon the ac-

quisition of the subject matter to be learned. In the former, attitudes are consciously conceived and sought for, whereas in the latter attitudes are the concomitants of the desired subject matter. This distinction is of prime importance, since it affects both the literature and the practice.

Curiously enough, the objectives indicated for both homogeneous and ability groupings are practically the same. These are (1) to improve learning for the former or instruction for the latter, (2) to promote better curriculum differentiations, (3) to make for a happier learning experience for the children, and (4) to carry out the principles of democracy through a democratic system of education. The interpretation of these objectives, however, is different. Homogeneous grouping assumes a reasonable like-mindedness of pupils to explore a given area with learnings within the area variably adjusted to individual needs. Ability grouping assumes a predictability that *all* pupils will learn a common body of subject matter uniformly well and indicate such learning by clustered scores on an objective test.

Analysis of courses of study seems to indicate four types of curriculums in practice in secondary schools. These are (1) the 'subject' curriculum, with emphasis more on ability than homogeneous grouping, although the latter sometimes functions through guidance programs; (2) the 'broad-fields' curriculum, with attention more on homogeneous than ability grouping; (3) the 'core' curriculum, with the utilization of homogeneous or ability grouping within the core depending upon how the core is conceived, and homogeneous grouping in other areas; and (4) the 'integrating' curriculum, with homogeneous grouping essential and ability grouping utilized wherever necessary to fix learnings important to the development of the larger experience. Both studies and curriculum trends, as evidenced by course-of-study bulletins and the like for secondary schools, seem to indicate that homogeneous grouping as herein defined is essential to effective learning of all pupils in all years, whereas ability grouping has little effect except for slow groups in learning subject essentials. Few reports of the utilization of ability grouping as ancillary to homogeneous grouping are available.

II. SEPARATE COURSES OF STUDY FOR RAPID-LEARNING AND SLOW-LEARNING PUPILS

Separate courses for rapid-learning and slow-learning pupils in secondary schools are confined more frequently to the junior than to the senior high schools. Production of such courses reached a peak in 1933 and has gradually declined since then. Such courses as do appear

are primarily in the subject or in the core curriculum. Usually they begin with a basic course for normal or average groups and provide for differences for the other groups in one of two ways: (1) greater emphasis upon minimal essentials or concrete experiences for slow-learning pupils; and (2) greater emphasis upon enriched curriculum or rapid progress for rapid-learning pupils. For slow-learning pupils the emphasis upon minimal essentials or concrete experiences has been about equal over a period of years, whereas for rapid-learning pupils the weight is in favor of enrichment rather than rapid progress, which is steadily declining, although it still has enthusiastic advocates.

One of the best arguments for differentiating courses of study for ability groups is from the office of the Superintendent of Schools of Albany, New York. Some years ago the Division of Research studied the performance of pupils on different levels of ability as measured by standardized achievement tests. It concluded that pupils of low ability did much better work in comparison with their ability than did pupils of superior ability. Since the work was suited to the average group, the superior rarely had a task that challenged them. The writer of the bulletin, the Assistant Superintendent, Division of Research, Board of Education, Albany, says:¹

To meet these undesirable conditions an earnest effort is being made to adjust the offerings to the capacity of the pupils. Under the direction of the Departmental Supervisors three distinct degrees of difficulty of subject matter have been prepared differing both in content and method of presentation. These differentiated levels are known as: A—advanced requirement for those of superior ability and superior achievement in the subject. B—regular syllabus requirements for the average pupil. C—a special level to meet the needs of those who are not able to cover the work of B, for pupils who have moved along with their age group but because they are mentally slow, or below the normal (90) probable learning rate, have failed to meet the standard of the B level. This C level does not meet the requirements for entrance to Regents examinations. Marks on the C level are on the basis of effort rather than accomplishment.

Two types of pupils most frequently follow the course of study for slow-learning groups. These are the mentally inferior and the normal or the bright who are not interested in academic learning. Some schools

¹ John H. Kingsley. "Subject Matter and Method Adjusted to Three Levels of Ability" (Albany, N. Y., May, 1935).

justify the inclusion of indifferent normal or bright pupils on the ground that they have reduced themselves to the level of their inferior classmates as a result of the years during which they have cultivated "poor habits of, and attitudes toward, learning." Modifications in both material and method are made for the indifferent normal or bright pupils, with provision for placement in a high-ability group as soon as achievement warrants such transfer.

In a few instances special courses of study in junior high schools are prepared for slow-learning groups that border on the special-class type. These groups are composed of post-adolescent, mature, overage individuals who for various reasons have been maladjusted by the existing school curriculum. If such pupils have high intelligence, they are shortly transferred to slow-learning or normal-learning groups, depending upon where they can make the best adjustment. When such pupils have low intelligence, they are usually continued in special classes under the guidance of one teacher who has freedom to make such adjustments in their work as seem desirable.

III. VARIATION IN ESSENTIALS FOR ABILITY GROUPING

Courses of study examined for ability groups usually set minimal essentials. Sometimes these are fixed for slow-learning groups, with additions for average and rapid-learning groups; sometimes they are fixed for average groups, with the acceptance of reasonable exposure, without standards of attainment, for the slow-learning groups. For rapid-learning groups the tendency is to teach these minimal essentials related to some real life experience, whereas for slow-learning groups the tendency is to teach them more in isolated form. While concrete experiences are frequently utilized, they are in many instances as far removed from reality for the children as the minimal essentials that they are supposed to enlighten.

For slow-learning pupils there is greater control over the learning by the teacher, greater regularity of program, more use of textbooks and lesson assignments, more utilization of the question-and-answer method, more practice with various individual and group instructional devices, and more frequent use of tests. With the rapid-learning groups there is much irregularity in the program; the classes meet from one to five or more times per week according to the needs as determined by the teacher; the recitation is of minor importance, since the lessons are not recitation-motivated; broad topics or large problems form the basis of work; reference materials are used in place of definite assignments

in textbooks; independent, self-directed individual study is encouraged; teacher's work with pupils to aid them in planning ways and means of studying their problems; group conferences are utilized wherever necessary; much use is made of class discussion; and pupils are always encouraged to push their thinking into the 'why,' the 'how,' the 'for what purpose,' or other avenues of inquiry that represent meanings and relations.

The work of the slow-learning pupil, therefore, is carried on in limited space, with limited vision, with limited freedom, and of course with limited results. The work of the rapid-learning pupil is carried on in wide space with great freedom, with intelligent direction, and superior results. In some instances these requirements are standardized, so that rapid-learning pupils are required to prove their ability to carry on independent study for a relatively long period in order to maintain their rating in such groups.

In the past three years less explicit directions have been given to teachers for modifying the course of study for average-learning groups to meet the needs of slow- or rapid-learning groups. Usually the more recent courses of study contain general suggestions concerning the nature of individual differences and the necessity for modification of materials and methods to meet individual needs. They do, however, leave to the judgment of the teacher the kind, amount, and time of such modification. This is truer of activity and integrating than of subject courses of study.

The organization of courses of study for ability groups is well illustrated for Grade 10B in Chart I, based upon the plan now in use in required English in Central High School, Providence, Rhode Island. The features of the differentiation in this school are (1) ability grouping, (2) reclassification of pupils at term intervals, (3) differentiated courses of study, (4) variable materials, (5) differentiated teaching methods, (6) coöperation with other departments. (See pp. 180-181.)

Variation in method for ability groups is illustrated for social studies in a report on experimentation in modern European history for Grade 10B by Miss Hazel Taylor of the Simon Gratz Senior High School, Philadelphia,¹ who states that a modification of the Morrison Unit Plan is used for both slow-learning and rapid-learning pupils, with these distinctions:

¹ Hazel Taylor. "An experiment in homogeneous grouping in Modern European History." *The Historical Outlook*, November, 1932, pp. 357-361.

While we used fairly large units of work even in the slower group, I made short day-by-day assignments within the unit so as to accommodate it to their shorter memory and interest span. We used a textbook written in simple language with considerable illustrative material. I began each unit with a presentation, which I made as concrete and pictorial as possible. Then I gave a short test to check up on their understanding. The next step consisted of daily assignments in the textbook with the class period used for recitation. I found them unable to develop a topic of any length, but they could answer short definite questions. Toward the end of the term some of them improved quite noticeably and were able to give much longer recitations, sometimes a résumé of the whole lesson, due, no doubt, to increased confidence which came with lack of successful competition.

For the rapid-learning groups Miss Taylor states briefly:

I discarded the daily recitation and threw them on their own responsibility after the presentation with the assignment sheet as a guide. . . . At the end of each unit we had a series of summing up talks that organized the material they had been gathering.

General methods employed in teaching English to slow-learning groups in the eleventh and twelfth years are described in a report by Miss Helen R. Jones, of the Southside High School at Elmira, New York, who writes as follows: ¹

1. A definite effort is made to encourage vocabulary building. It is seldom best to try to do this by giving lists of words for study, for the student rarely transfers this new knowledge to a later situation. It is more effective to learn the words encountered in daily reading and to take every opportunity to emphasize their reoccurrence. The teacher can often use the new words in her conversation and encourage the students to do so. A real sense of pride can be developed in the mastery of 'hard words.'

2. It is never best to give short-answer tests of the type which allow sentence-fragment answers. Plan the test questions so that they can be answered in single words, or demand a complete sentence. Try to explain the two common types of sentence errors, the comma splice and the run-on, and constantly use the terms. Demand the correction of all such errors as they are found in the student's written work. Even in oral recitation try to get complete sentence answers. In no other way will a sentence sense be developed.

¹ Quoted from a curriculum report prepared for use of this Committee.

CHART I¹ — THREE-TRACK PLAN IN REQUIRED 10B ENGLISH

	'C' Group	'B' Group	'A' Group
	<i>High Reading- Comprehension Scores College Preparatory</i>	<i>Average Reading- Comprehension Scores</i>	<i>Low Reading- Comprehension Scores</i>
GRAMMAR	Technical grammar to meet College Entrance Examination Board requirements.	Simplified functional grammar as an aid in composition activities. (See: <i>A Sliding Scale of Grammar Values.</i>)	Elimination of speech crudities. Grammar, if any, to grow out of composition difficulties; enough to allow critical revision of errors.
USAGE	Based upon grammar requirements above. Strict correlation of principles and practice.	Application of useful grammar forms in the elimination of flagrant errors in speech and writing.	Frequent opportunities for expression devoid of banned crudities, lists to be evolved out of the speech difficulties of each group.
SENTENCE STRUCTURE	Sufficient practice to eliminate: Sentence fragments Run-on sentences Rambling sentences Unrelated ideas Excessive coördination	Sufficient practice to eliminate same errors as in the college group list (see list at the left).	Practice to eliminate childish and illiterate expression. Work to be based upon individual class errors.
	Varied sentence structure.	Building the sentence.	Construction of the simple sentence.
COMPOSITION	Oral — current events of English interest. Written — narration with stress on varied sentence structure. Punctuation as it grows out of composition.	Oral — current events of English interest. Written — narration with decent, fluent expression. Punctuation as it grows out of composition.	Oral — use of English in social relations (interviews, introductions, etc.). Written — letters, notes, explanations, etc., devoid of gross errors. Punctuation as it grows out of composition.

¹ Courtesy of Central High School, Providence, R. I.

	'C' Group	'B' Group	'A' Group
LITERATURE	Short stories. Biography.	Short stories. Biography.	Short stories. Biography.
	Emphasis upon the writers cited by the College Entrance Exam. Board. Technique and appreciation.	Adventures in prose narrative, emphasis on the contemporary. Content determined by group interests. Appreciation.	Reading for enjoyment. Content determined by the interests of group. Magazines, newspapers, etc. Interpretation and background by teacher. Silent reading and removal reading faults.
SPELLING	List of commonly misspelled words, plus the terms of literature and grammar.	List of commonly misspelled words. Individual class lists.	Lists based upon misspellings due to mispronunciations. Extensive work in vocabulary.
LIBRARY WORK	Proper use of the library. Emphasis on research facilities.	Proper use of the library. Encourage use as a leisure-time activity. Research facilities.	Something for everyone; something for nothing. In what are you interested? Try the library.
	Visitations. Project.	Visitations. Project.	Visitations. Browsing.
BOOK REVIEWS	Extended reading of writers cited by the College Entrance Exam. Board.	Encourage the outside reading of books. Extra-credit reports, oral and written.	Do you think that this could happen . . . ? Read it in . . . Have you ever heard this story . . . ? Finish it in . . . Have you ever known of an armless general? Read about him in . . .
	Frequent class discussion.	Use of weekly book periodicals.	
READING HANDICAPS	The improvement of silent reading. Tests and drills. Remedial work.	The improvement of silent reading. Tests and drills. Remedial work.	Intensive work: Reading situations for removing causes of poor reading. Suitable situations for developing good reading habits, using all of a book, improving word habits, reading for main ideas, skimming, outlining, studying, browsing, etc.

3. In order to overcome the tendency to brevity, it is best to ask that topics be discussed in paragraphs and even to give a definite word limit. The necessity of expressing one's ideas in 75 words adds an element of contest to the assignment.

4. Try to force the rereading and revision of all written work. Allow time for this. Help the student see that he can find many of his own errors.

5. The literature study in class should be fairly intensive. Extensive reading can be encouraged, too, and will surely be more profitable after the student has learned how to read more effectively. The intensive reading can be accomplished by paraphrasing, explaining of figurative language, choosing of topic sentences, and by simple précis writing. A wise teacher will sense when she has gone far enough with this type of study and is in danger of losing the interest of her class.

6. In order to teach the student to recognize the plan or organization of written material, it is best to help him outline the writing of others. It will then be easier to teach him to outline his own ideas and write a theme which has some organization.

7. The teacher must constantly check back to material previously studied and show the value of 'carry over.' Use every opportunity to tie up English work to other school subjects, assembly programs, movies, etc.

8. Hold the students to a task until it is completed. Never let them give up a job which it is at all reasonable to finish. Try to teach thoroughness, promptness, and the following of instructions. They are far more important than verbs, similes, and antecedents.

IV. DIAGNOSIS AND REMEDIAL TREATMENT

For slow-learning pupils diagnosis is confined more frequently to attempts to isolate disabilities in specific skills, as in reading, English composition, spelling, and the like. For rapid-learning groups, diagnosis is concerned largely with difficulties in the development and utilization of flexible habits, as selecting problems for independent study, planning the methods of attack, abstracting essentials from pertinent materials, organizing ideas effectively for presentation, and the like. The specific skills that are the field of concentration for the slow-learning groups are either considered of less importance for the rapid-learning pupils or are considered to be attained by them to a reasonable functioning degree through the freer, more liberal learning experience.

The nature and amount of diagnosis and the extent of remedial treatment cannot be determined by an examination of curriculum materials listed or suggested in courses of study. These are usually

supplemented by workbooks, textbook-notebooks, and varieties of drill materials. The attitude on this problem is more closely related to administrative policy and practice than to the general organization of the curriculum.

Schools operating under the plan of homogeneous grouping rarely have fixed skills or flexible habits that are set out for diagnosis and testing previous to the learning situation. They diagnose for individual pupils in those areas in which there is lack of skill or technique resulting in failure of the individual to function normally in the solution of the problem. Most of the thirty schools in the experiment of the Progressive Education Association Commission on the Relation of School and College follow this concept of diagnosis and remedial treatment.

Under the plan of homogeneous grouping it is difficult to determine the extent of diagnosis and remedial treatment, owing to the flexibility of courses of study and freedom given the teacher to organize such groups at any time and for such duration as in her judgment meets the needs of pupils.

V. TENDENCIES WITHIN SUBJECTS

The tendency in the subject curriculum is to guide pupils into those elective subjects in which they have an interest or a purpose that holds out a reasonable possibility of success. This means that, when high-school graduation requirements will permit, slow-learning pupils are advised not to study algebra. In some instances definite statements are made that pupils with less than 110 I. Q. cannot pursue algebra with pleasure, profit, or success. This tends to make for homogeneous grouping in all elective areas, since this is the end of the guidance program. Where the guidance machinery does not function effectively and pupils with little interest and low ability are found in subject groups, ability differentiations are usually made. Such differentiations occur most frequently in subjects in the following order: art, social studies, English, household arts, some commercial subjects, science, mathematics, and foreign languages.

More frequently in art than in other courses, methods for providing for individual differences are not indicated in courses of study but are left to the initiative of individual teachers. In some instances the statement is made that content is to be construed as suggestive and that selection is to be made by the teacher in the light of the needs of individual pupils. On the other hand, some art courses provide for

adaptation to individual needs merely by modifying the standard of workmanship.

Differentiations are mentioned in the social studies less frequently than in art, but they represent a wider range than in English. Frequently for slow-learning groups in the junior high school, social-studies content of the elementary grades is recommended, whereas for the senior high school, social studies on the junior-high-school level are suggested. For rapid-learning pupils there is a greater amount of required reading, a larger number of more difficult problems, more independent research, and a higher standard of attainment.

In English, differentiations are made in required readings, degree of attainment in punctuation and grammar, and length and number of compositions. Good illustrations of such differentiations are found in Sacramento, California; Providence, Rhode Island; Kansas City, Missouri; Lakewood, Ohio; and Rochester, New York. In most subjects there is less differentiation in methods of teaching than in content.¹

Types of courses that make only slight provision for individual differences are found in algebra and geometry. In algebra a lower standard of performance is accepted for slow-learning groups, or certain difficult problems are eliminated. In geometry the tendency is to increase the emphasis upon original work for rapid-learning groups and to reduce the propositions to a listed minimum for slow-learning groups. The method appears to be constant for both groups.

School clubs or similar groups exist in so many junior and senior high schools, either as curricular or extracurricular organizations, that their contribution must be considered. They represent homogeneous groups organized to explore fields of interest with maximal attention to specialized individual interests and abilities. The history of club activities indicates that they were originally conceived to meet this need, which was denied pupils under a regular subject-curriculum organization. To the extent that clubs follow this concept of their function, they offer a greater opportunity for flexibility in grouping for effective development of pupils than can be found in subjects, but not more than can be found in some of the good activity or integrating curriculums. Manuals for the guidance of teachers and pupils in exploring the club areas are numerous.

¹ The State of Kansas English Course of Study for 1930 contains the suggestion that the "bright pupils conduct many of the drills and help grade the exercises" of the dull pupils.

VI. THE EMERGING POINT OF VIEW

On the basis of the present movement away from the fixed-subject curriculum toward one with greater flexibility in all aspects, it seems safe to suggest the following trends as indicated in the more recent curriculum materials:

1. An increase in homogeneous grouping.
2. A decrease in ability grouping as conceived under the subject curriculum.
3. An increase in the use of short-time ability groups to meet special individual needs within homogeneous groups.
4. An increasing freedom for pupils and teachers to plan as to needs and best ways of meeting individual and group needs successfully.
5. An increasing recognition of grades as years of life, with emphasis upon rich living rather than upon learning subject matter with adult-dominated standards in adult-preferred subjects.

SUPPLEMENT TO SECTION III

COURSE-OF-STUDY BULLETINS AND OTHER MATERIAL ADAPTING INSTRUCTION TO DIFFERENCES IN PUPIL ABILITY

The following list of bulletins, prepared by Dr. Wyndham,¹ gives courses of study prepared before 1931.

<i>School System</i>	<i>Title of Course of Study</i>	<i>Year</i>
Los Angeles	English for Z Pupils	1923
Oakland, Cal.	Handbook of Suggestions for Use in Atypical Classes	1923
Los Angeles	Manual for Development Schools and Rooms	1924
Los Angeles	Course of Study for 3rd & 4th Grades	1924
Los Angeles	Course of Study for 5th & 6th Grades	1924
Trenton, N. J.	Course of Study, Special Classes	1924
Minneapolis	Suggested Course of Study for Retarded Children	1924
Detroit, Mich.	Course of Study in Art Education, Grades 1-8	1925
Detroit, Mich.	Course of Study in English, Grades 1-6	1925
Detroit, Mich.	Course of Study for Special Classes	1926
Detroit, Mich.	Promotion Standards for X, Y, Z Groups, Grades 1-6	1926
Oakland, Cal.	Bulletin on C. Course, in Grades 9-12	1926
San Francisco	Courses of Study for Atypical Classes	1926
Chicago, Ill.	Tentative Course of Study in Arithmetic, Grades 1-6	1927
Chicago, Ill.	Tentative Course of Study in English, Grade 7B	1927
Cleveland, Ohio	Tentative Course of Study in Spoken and Written English, Grades 3-6	1927
Cleveland, Ohio	Tentative Course of Study in Arithmetic, Kdgn.-Grade 4	1927
Detroit, Mich.	Course in Nature Study, Grades 1-2	1927
Denver, Colo.	Differentiation of Curriculum for Slow-learning Children	1928
Hamtramck, Mich.	Course of Study for Special Classes	1928
South Bend, Ind.	Course of Study for Girls' Prevocational School	1928
Cleveland, Ohio	Tentative Course of Study in Mathematics, Grades 7-9	1928

¹ Harold S. Wyndham. *Ability Grouping* (Melbourne University Press, 1934), 234 pp. (p. 89).

<i>School System</i>	<i>Title of Course of Study</i>	<i>Year</i>
Schenectady, N. Y.	Course of Study Presenting General Mathematics Objectives, Grades 7-9	1928
Springfield, Mass.	Course of Study for Auxiliary Classes	1929
Long Beach, Cal.	Mathematics for 'Z' Groups, Grades 7-8	1929
Cleveland, Ohio	Course of Study in Geography, Grades 3-4; Grades 5-6	1929
Denver, Colo.	Course of Study in Arithmetic and Reading for the Slow Learning	1930
Texas	A Course in English for Non-English Speaking Pupils	1930
Detroit, Mich.	Literature Methods and Materials for Slow-learning Groups	1930
Wisconsin	A Course of Study for Classes for Mentally Handicapped Children in the Public Schools of Wisconsin	1930
Oswego, N. Y.	Tentative Outline for Special Classes of Sub-normal Children	1930
Rochester, N. Y.	Standards and Achievements in Reading, Grades 1-6	1930

In connection with Chapter IX, Professor Harap prepared the following list of curriculum bulletins. Most of them have appeared between 1930 and the present time.

I. CURRICULA FOR ABILITY GROUPS

1. Adaptation for Dull Pupils

- Baltimore, Md. — Health, Grades K-6, 1930
- Berkeley, Calif. — Social Studies, Grades 3-6, 1932
- Cleveland Heights, Ohio — Physical Education, Grades 1-6, 1930
- Cleveland, Ohio — Geography, Grades 3-4, 1929
- Oakland, Calif. — Health Education, Grades 3-4, 1929
- San Jose, Calif. — Reading, Grades 1-6, 1928

2. Adaptation for Bright Pupils

- Baltimore, Md. — Health, Grades K-6, 1930
- Berkeley, Calif. — Social Studies, Grades 3-6, 1932
- Fort Wayne, Ind. — History, Grade 4, 1933
- Hamtramck, Mich. — Nature Study, Grades 1-2, 1933
- New York State — Science, Elementary Grades, 1932
- San Jose, Calif. — Reading, Grades 1-6, 1928

3. Varying Procedures for Two or More Levels of Ability

- Baltimore, Md. — History, Grades 4-6, 1931
- Baltimore, Md. — Geography, Grades 4-6, 1931

II. SEPARATE COURSES OF STUDY FOR SPECIAL OR RETARDED CHILDREN

- Cleveland, Ohio — Reading for Ungraded Z Pupils, 1934. Mimeographed
 Denver, Colo. — Arithmetic and Reading for Slow Learning, Grades 1-6, 1930
 Detroit, Mich. — Literature for Slow Learning Groups, 1934
 Grand Rapids, Mich. — Adaptations of Courses of Study for Auxiliary and Ungraded Classes. 1932
 Massachusetts State — Special Classes. Grades 1-8, 1932
 New York State — Special Class Curriculum Study. University of the State of New York Press, No. 944, 1931
 Rochester, New York — Tentative Course of Study for Special Classes. 1930
 Rochester, New York — Curriculum Study — Tentative Centers of Interest for Primary and Intermediate Special Classes. 1931
 Springfield, Mass. — Course of Study for Auxiliary Classes. 1929
 Texas, State of — English (for Non-English-Speaking Pupils), Grades 1-3, 1930
 Wisconsin State — A course of Study for Classes for Mentally Handicapped Children in the Public Schools of Wisconsin

III. INDIVIDUALIZED LEARNING BY MEANS OF INSTRUCTION SHEETS

- Cicero, Ill. — Social Science, Grade 5, 1933
 Cicero, Ill. — Social Science, Grade 6, 1933
 Detroit, Mich. — Spelling, Grades 1-6, 1932
 Elmhurst, Ill. — Social Studies, Grades 1-8, 1933
 Hamtramck, Mich. — Music, Grades 1-7, 1933
 Hamtramck, Mich. — Nature Study, Grades 1-2, 1933
 Rochester, N. Y. — Social Science, Grade 3, 1931
 Shorewood, Wis. — Social Science, Grade 4, 1933

IV. DIAGNOSIS AND REMEDIAL WORK

- Arizona, State of — Arithmetic, Grades 1-8, 1933
 Arizona, State of — Social Studies, Grades 4-8, 1933
 Baltimore, Md. — Health Education, Grades K-6, 1930
 Baltimore, Md. — Arithmetic, Grades 4-6, 1931
 Buffalo, N. Y. — Arithmetic, Grades 1-6, 1931
 Denver, Colo. — Arithmetic, Grades 3-6, 1933
 Denver, Colo. — Speech Correction, Grades 1-6, 1931
 East St. Louis, Ill. — Spelling, Grades 1-6, 1930
 Greensboro, N. C. — Arithmetic, Grades 1-6, 1933
 Kansas City, Mo. — Arithmetic, Grades 1-6, 1928
 Lexington, Ky. — English, Grades 1-2, 1934
 Long Beach, Calif. — Reading and Literature, Grades K-3, 1930
 Long Beach, Calif. — Arithmetic, Grades K-1, 1929
 Minneapolis, Minn. — Reading, Grades 1-3, 1931
 Missouri, State of — Arithmetic, Grades 1-8, 1930
 New York City — Arithmetic, Grades 1-6, 1929
 Sacramento, Calif. — Reading, Grades 3-6, 1931
 San Jose, Calif. — Reading, Grades 1-6, 1928
 Springfield, Mass. — Arithmetic, Grades 1-6, 1931
 Springfield, Mass. — Reading, Grade 3, 1930

SECTION IV

THE ADMINISTRATION OF ABILITY GROUPING

PREFATORY NOTE

Ability grouping came into being primarily because school administration was faced with certain problems of pupil adjustment that seemed to be solved most reasonably by such a system of pupil classification. In Section IV some of these administrative problems are presented, with reference especially to the solutions that are now current in typical school systems.

In Chapter XI Dr. Boyer describes what is done in the elementary schools of Philadelphia. It will be noted that the Philadelphia grade group may be divided into any number of ability groups, whereas some school systems recognize only three groups and give these three a uniform definition throughout the system.

In Chapter XII Dr. Billett discusses all kinds of grouping in the secondary school and shows that ability grouping is but one of these kinds. To a lesser degree, Dr. Boyer does the same in his chapter on grouping in the elementary school.

In Chapter XIII the examples, or pictures, of ability grouping presented by Mr. Connor show in somewhat more detail the administrative procedures that have been adopted in various schools to carry out ability grouping. There plainly runs through all his examples the conviction that pupil needs are more adequately met when groups are made more homogeneous.

In these three chapters the reader will note that the definition of the 'grade group' and the general underlying philosophy of school administration are factors that obviously condition the development of details of grouping in individual school systems.

W. W. C.

CHAPTER XI

THE ADMINISTRATION OF LEARNING GROUPS IN ELEMENTARY SCHOOLS

PHILIP A. BOYER¹
Director, Division of Educational Research
Public Schools, Philadelphia, Pennsylvania

I. PURPOSES OF PUPIL GROUPING

Consciously or unconsciously the conduct of an educational enterprise is guided by the active philosophy of the administrator. When pupils are associated into learning groups, the bases for determining and administering the groups are fixed by the major purposes of the grouping. If it is true that in practice the chief purpose of ability grouping has been to eliminate individual differences and have all pupils within given segregated groups learn a common body of subject matter uniformly well, then ability grouping is indeed discredited. Even if the efforts to arrive at such an end were futile, the attainment of the much more important objectives of self-direction, flexibility of behavior, and integration of personality would be seriously impaired.

If we endorse a philosophy of education that is dynamic in its recognition of individual and social progress, and that facilitates ability to think straight in an ever-changing environment, we shall reduce emphasis on standardized subject matter as such, emphasize the discovery and development of individual potentialities, foster individual and social adaptability and responsibility, and promote in both pupil and teacher greater initiative and freedom of choice. There will be activity, flexibility of adjustment, curriculum integration, guidance, individualized learning contacts, and a social philosophy of living, but there *still* will be grouping. The wise administrator recognizes that broad educational ends can be attained more effectively if pupils work together in school, as in society, in congenial groups. These groups will have not only a community of purpose and a naturalness of interaction; they will also provide a reasonable assurance that each pupil in the

¹ In collaboration with Dr. W. Walker Cheyney, Research Supervisor, Philadelphia Public Schools.

group will make a real contribution to the group experience and will profit by it.

Economy of administration demands that pupils be taught in groups. Physiological, psychological, and social considerations lead naturally to distinctive groups. There can be no distinction between grouping for purposes of school organization and grouping for effective learning. The success of school administration must be judged by the extent to which it facilitates for each individual a socialized self-realization in conformity with accepted aims of education. The administrator's problem, therefore, becomes one of determining the best bases for groupings that will effect the attainment of the specific aims of the group in question.

In the last analysis, practically all groups will find their cohesiveness in a community of purpose. Only when all members of the group recognize clearly a common purpose and their individual relation to its attainment may we expect the highest type of coöperative activity.¹ An important responsibility of education is to develop in individuals an appreciation of the significance of the group purpose and of their contributions to the group enterprise. Consequently, it is entirely proper for education to view groupings as a means by which pupils may more and more fully sense the significance of group activities in their relation to complete living. The bases of groupings will vary with the activities and purposes of the group. A group that is effective for one set of activities may be valueless for the attainment of distinctly different purposes. It is necessary, therefore, that the ends to be attained and the means of attaining those ends be considered in determining bases for grouping.

Groupings for the attainment of the intellectual purposes of the school may well be founded on objective or scientific data relative to mental ability. The close correlation of many traits makes this basis of grouping useful for a wide variety of school purposes. This does not mean that such groups preclude or even interfere with the realization of other ends or with the organization of other groups for different purposes. If the major aim of the group is to acquire knowledge, the bases of grouping may be quite different from those underlying the organization of a group whose chief purpose is the development of artistic appreciation in literature and art, or training in a particularized skill that is not closely related to mental ability as measured by the intelli-

¹ Cf. the discussion by Professor Chapin in another chapter.

gence tests. Major school groupings, then, will be determined by general or dominant purposes, and ample provision will be made for a flexibility that will foster the organization and effective administration of minor or specialized groups.

II. GRADE GROUPS AND THEIR REFINEMENT

1. The Indefinite Nature of the Grade Group

The most common type of grouping in elementary schools is that produced by classifying pupils into grades. There is no single definition of 'grade.' At one time it was thought that classification into grade groups would insure a high degree of homogeneity in knowledge and skills attained, and even of community of purpose. We now realize that our traditional system of grade groups has failed to produce the degree of homogeneity for which we hoped.

Figure 1 shows that grade grouping, as usually practiced, provides only the roughest kind of classification. Here we see what the distri-

	DISTRIBUTION OF CHRONOLOGICAL, MENTAL, AND EDUCATIONAL AGES				
	TWO OR MORE YEARS BELOW NORMAL	ONE YEAR BELOW NORMAL	NORMAL FOR GRADE	ONE YEAR ABOVE NORMAL	TWO OR MORE YEARS ABOVE NORMAL
CHRONOLOGICAL AGE	•	••••	•••••	•••	•••
MENTAL AGE	•••	•••	••••	•••	•••
READING AGE	••	••••	••••	•••	••
ARITHMETIC AGE (PROBLEMS)	••	••••	••••	•••	••
ARITHMETIC AGE (FUNDAMENTALS)	•	••••	••••	•••	••
SPELLING AGE	••	••••	••••	•••	••

FIGURE 1. — RANGES IN CHRONOLOGICAL, MENTAL, AND EDUCATIONAL AGES FOR A SIXTH-GRADE CLASS OF 40 PUPILS

(Based on City Distributions of Ages and Test Scores)

bution of chronological, mental, and educational ages of pupils of a sixth-grade class would be if each class were completely representative of the grade population in a large and typical school system.

The ranges of traits shown in Figure 1 represent but a small fraction of the multitude of characteristics in which pupils differ. If we could add physiological differences to those displayed, and supplement these by records of the many more or less intangible differences in social age, emotional pattern and control, and versatility of aptitude and interest, we should still have only a sketchy outline of the complexity of individual characteristics and traits that present themselves in a typical grade group.

In actual school practice it is likely that the wide variety of important pupil characteristics retained in unrefined grade grouping will often be restricted and modified by neighborhood conditions. As variant as these conditions are within themselves, they are likely to be somewhat homogeneous in at least a few pupil characteristics. Prominent among these are average levels of intelligence. Thus, while the ranges of variation in the characteristics of the pupils of a given grade in a particular school are sometimes greater, in general they are likely to be somewhat less extensive than those displayed in Figure 1.

2. The Tendency to Make a Grade a Chronological-Age Level

Figure 1 indicates greater homogeneity in chronological age than in mental age or in achievement ages in most subjects. Present promotion practices are everywhere tending to eliminate the repetition of grades and thus to reduce still further the range of chronological age within a grade. As the tendency to form grade grouping on the basis of chronological age increases, the age factor assumes less importance as a basis of further sectioning into ability groups.

Many school systems have recognized the desirability of improving the general homogeneity of grade groups even before applying the device of ability grouping for refining the classification. In some of the reorganizations, the range of chronological age within a given grade has been reduced more or less arbitrarily. In doing so, the school has assumed the responsibility of adjusting its activities to the capacities of pupils as they grow year by year. Thus, regular advance through the grades by years of chronological age is providing a uniformity within grades quite different from that effected under the traditional scheme of setting up achievement hurdles. In most school systems to-day, however, chronological-age variation within a grade is still so great that the effort to reduce its ranges by forming ability groups within the grade remains an important administrative problem.

3. The Effect of Special Classes on the Variability of the Grade Group

School systems vary widely in the extent to which they make special provision for exceptional pupils. One school system provides special-class facilities in small classes with specially trained teachers for as many as six percent of its elementary pupils at the lower end of the intelligence range. Other systems segregate into special classes for backward pupils only two percent, or less, of the elementary-grade enrollment. A few systems provide special classes for exceptionally bright pupils; most systems do not. Although the special class policies of a school system apply only to a relatively few pupils at the extreme ends of the intelligence range, they do affect the extent of the distribution of intelligence of the pupils remaining in regular classes.

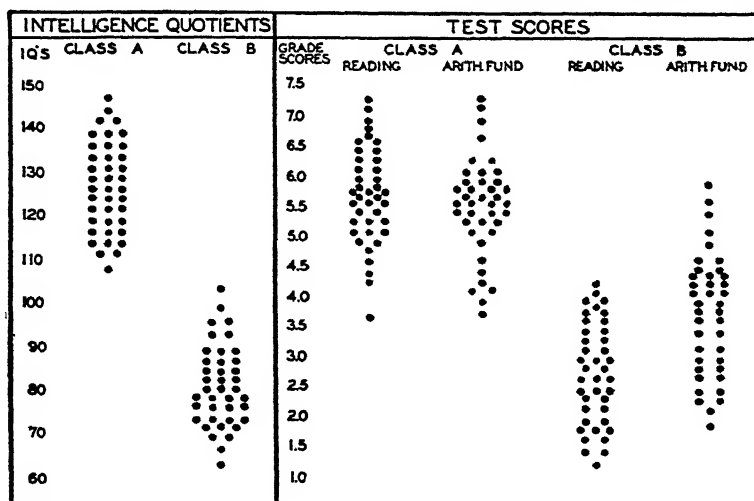


FIGURE 2. — DISTRIBUTIONS OF I.Q.'s AND TEST SCORES OF PUPILS IN TWO CLASSES OF GRADE IV (SECOND SEMESTER)

This difference sometimes has important bearings upon the administrative policy of the system relative to the refinement of grade groupings among regular class enrollments.

4. Ability Grouping as a Refinement of Grade Grouping

In Figure 2 we have brought together distributions of pupils in two fourth-grade classes in the Philadelphia public schools. One of these classes represents a low ability group in a school in which the average intelligence is low. The other class represents a high ability group in

a school in which the average intelligence level is high. Consequently, we are picturing two extreme results from the operation of grouping by the three factors of grade, neighborhood, and ability. We are not likely to find in any one school organization so wide a difference in average pupil intelligence and achievement as is represented in Figure 2. Nevertheless, the distributions there given will help to clarify two important points: (1) even in a closely organized ability group, there still remain ranges of individual pupil difference sufficiently wide to test the resourcefulness of the best teacher; (2) no important educational advantage could be secured by making either of these grouped classes any less homogeneous in any of the traits measured than they now are.

If we accept the grade organization as we find it in most schools, or even as it has been refined in some systems by the reduction of the chronological-age range, there are many advantages to be derived from further ability grouping within the grade. Moreover, it will be desirable within these major ability groups to provide for minor or temporary groupings to meet incidental pupil interests and instructional needs. Analysis of pupil performance either by observation or with the aid of diagnostic tests directs attention to the need of special groupings for remedial teaching. Occasionally, in large school organizations, small groups of pupils may leave the regular classroom for special types of teaching designed to improve adjustment. Projects growing out of classroom activities, assemblies, games, and the like give rise to groups of varied nature organized for the attainment of specific purposes, and providing opportunity for each participant to make contribution in accordance with his interests and abilities. Some of the projects will involve groupings that cut across ability groups and even grade groups; others represent refinements of the ability grouping itself. In any case, the basic ability grouping within a grade group will facilitate rather than impair the cohesiveness, the community of interest, and the opportunity for individual participation that is characteristic of purposing groups in society.

III. SECTIONING PUPILS INTO ABILITY GROUPS

1. Chronological Age as a Basis for Sectioning

In determining the best basis for sectioning, it is theoretically desirable to consider a multitude of factors. In actual practice, however, it is necessary to have a simple, easily-usable system. Where original

grade groups still retain wide ranges of chronological age, this is the first and most fundamental factor to be considered. Chronological age is a natural basis that children are likely to use of their own accord. Increased promotion rates that tend to classify pupils into chronological-age groups indicate that it is gaining wider recognition in schools. It is used not only in schools but also in camps and on the playground. Chronological age is the best single index of a variety of important conditions, such as social maturity and physical size and strength. Grouping on this basis tends to give to both social and educational activity in the classroom the greatest significance for the greatest number of pupils.

2. The Intelligence Quotient as a Basis for Sectioning

Learning rate, or I.Q., is another important factor in sectioning pupils of a given grade into ability groups. The I.Q. gives a fairly accurate indication of the pupil's ability to meet new situations and to solve new problems. Pupils of approximately the same chronological age with reasonably similar learning rates can associate with mutual advantage in attacking problems that arise in their school experience. They tend to be interested in the same types of activity, and to react with a reasonably similar basis of insight. Group discussion, purposing, and evaluation have meaning to all members to the extent to which their natural rates of mental reaction are similar. Whether or not we believe that the I.Q. may be materially changed by environment, we must, nevertheless, admit that any such changes must occur slowly and that the I.Q. is the most reliable index of a pupil's present type of mental reaction. Other factors, such as teacher judgment, educational age, school marks, or rate of progress through the grades, are likely to be indexes only of what the child has done, not of what he might have done or can do. A knowledge of the I.Q. is essential if we are not to overstimulate the slow child and if we are to guide the bright child to work up to the level of his capacity.

3. Achievement as a Basis for Sectioning

The record of the past performance of the pupil cannot, however, be neglected. In this record we may read future performance with a high degree of probability. The danger of too great reliance upon this factor is that of assuming that the past record is a true indication of the pupil's real ability under conditions that may vary from time to time and from occasion to occasion. The record of past performance can-

not be used alone as a basis of sectioning, not only for the reasons already considered but also because chronological age, the most important factor, is only indirectly and remotely included. While records of past performance are not entirely satisfactory as a primary basis for general grouping within a grade, they should be considered nevertheless, in determining the wisdom of occasional modifications in the sectioning of classes. Records of past performance are of prime importance in forming temporary groups for specific adjustment or remedial purposes. If records of past performance are in serious disagreement with the I.Q., either the I.Q. is in error, or the pupil has been unduly or insufficiently stimulated in his past school life. The first step is to verify the I.Q.; the next step is to be alert for symptoms of strain, if the pupil has been working too hard, or for new and better methods of stimulation if the pupil has not been working up to his capacity.

4. The Teacher's Judgment as a Basis for Sectioning

The subjective judgment of a teacher may be a highly predictive index to future performance if it is based upon past performance of the pupil as measured by objective tests in subject matter, marks in preceding terms, and the pupil's progress through the grades. There are, however, three objections to the use of such subjective judgment as one of the bases for sectioning pupils into ability groups. The first objection concerns the difficulty of assembling, summarizing, and interpreting a mass of significant data for each pupil. The second objection is the fact that past performance measures what the pupil did, not what he might have done under proper stimulation. The third objection lies in the fact that if this factor of past performance is averaged with the other two factors of I.Q. and chronological age, the identity of these last two factors is likely to be lost.

As an illustration of the effects of including teacher's judgment, we may find a pupil in an ability group below that in which his I.Q. would normally place him. In such a case he would be likely to be working in the group for which his past record best fitted him. This may be advisable as a temporary expedient, but the teacher should be charged with the responsibility of determining whether it would not be possible in the future to stimulate the pupil to a point where he could do satisfactorily a type of work commensurate with his learning rate.

Subjective judgment based upon past performance may legitimately be used in those isolated instances where there is serious discrepancy in the record of I.Q.'s of an individual pupil. At the time of

sectioning pupils into ability groups it is not always possible to retest all those cases for which a serious discrepancy of I.Q. records appears. In such cases, past performance and teacher judgment should be applied to determine which of the measured I.Q.'s is most likely to represent the pupil's true learning rate. The assignment should then be considered temporary until more adequate data are secured.

5. Bases of Sectioning Used in Philadelphia

At various points in the Yearbook, different bases for grouping have been proposed and either defended or condemned. It is not our purpose to attempt a survey and evaluation of bases. Our experience in Philadelphia has developed simple practicable policies. These will be presented briefly with occasional reference to variant policies followed in other representative school systems.

The three factors of chronological age, I.Q., and past performance are shown separately in the accompanying figures. Figure 3 shows the

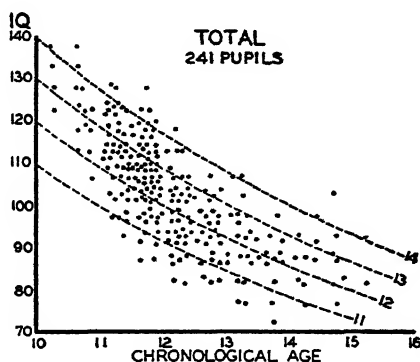


FIGURE 3.—DISTRIBUTION OF 241 SEVENTH-GRADE PUPILS BY I.Q. AND C.A.

(Curved Dotted Lines Show Sectioning on Basis of Mental Age)

distribution of 241 dots, each representing 5 pupils. The location of these dots is representative of a total of more than 1200 seventh-grade pupils and permits us to see relationships that have usefulness in sectioning the smaller groups usually found in an elementary grade of a typical school. It indicates the distribution of these pupils by I.Q. and chronological age. In the figure, four lines of equal mental age are drawn in such a way as to divide the distribution into five groups.

In the four sections of Figure 4, the 241 dots (hereafter considered as individual pupils) are separated according to past school performance as measured by objective tests. Examining the sectioning produced by the mental-age lines, we see that most of the pupils who do excellent school work are included in the highest sections, and most of the pupils who do poor work are included in the lowest sections. These mental-age lines divide the 241 pupils into groups that are reasonably homogeneous on the basis of records of past performance. Despite

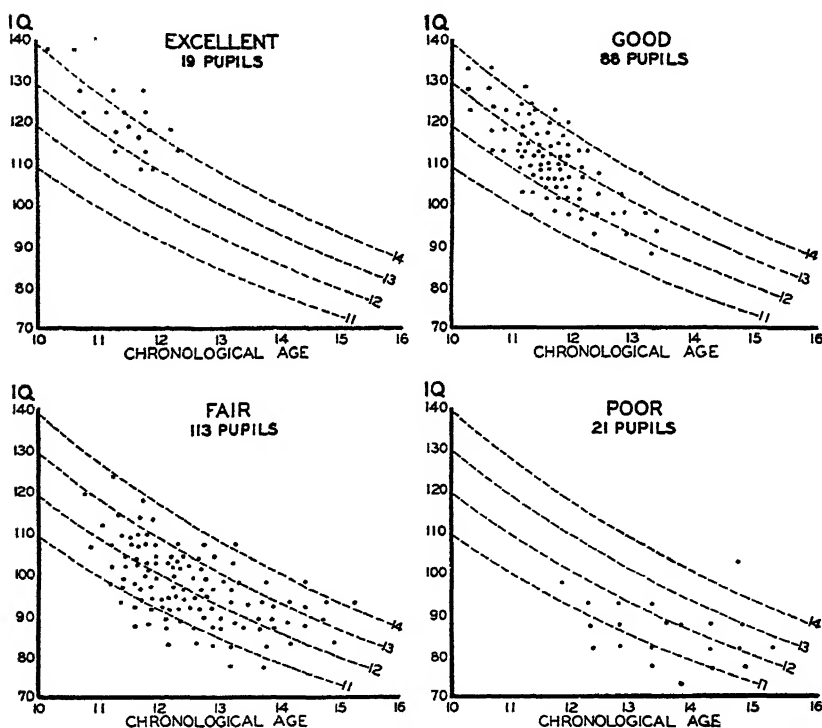


FIGURE 4.—THE 241 PUPILS IN FIGURE 3 SEPARATED ON THE BASIS OF PAST PERFORMANCE (EXCELLENT, GOOD, FAIR, AND POOR)

this advantage, the mental age is so poor an index of I.Q. or of chronological age as to be unsuited for use in dividing pupils into general ability groups, for it will be noticed (Figure 3) that any one of the mental age sections includes almost the whole range of chronological ages as well as a wide range of I.Q.'s.

By imagining horizontal lines running across Figure 3, we can

visualize a grouping on the basis of I.Q.'s alone. In a similar way, by imagining vertical lines we can visualize sectioning on the basis of chronological age alone. It will be seen that if we cut the sections by horizontal I.Q. lines, some sections, especially in the low I.Q. groups, will include a wide range of chronological ages. If the sections are made on the basis of chronological age alone, the sections between the ages of 11 and 14 years will include a wide range of I.Q.'s. These observations indicate that, like mental age, neither I.Q. nor chronological age alone will give the degree of homogeneity desired.

Figure 5 shows a simple method of dividing these 241 pupils into six sections, each one of which has a limited range of I.Q. and chrono-

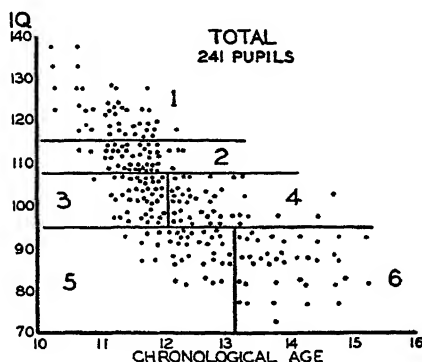


FIGURE 5.—THE 241 PUPILS SECTIONED BY I.Q. AND C.A. INTO ABILITY GROUPS (1 TO 6)

logical age. Figure 6 indicates that each group is sufficiently homogeneous with respect to the past performance of the pupils. In cases where there are so few pupils as to warrant only two sections, it is suggested that a straight I.Q. division be made. If there are to be three sections, a straight I.Q. grouping is recommended if the average I.Q. of the whole group is average or high; if the average I.Q. of the whole group is low, the top section should be cut off on the basis of I.Q., the remainder divided in half on the basis of chronological age.

The basis here suggested for sectioning classes within a total grade group is that of using chronological age and I.Q., the I.Q. alone being sufficient for sectioning pupils with average or high intelligence and the chronological age being a necessary supplement when the I.Q.'s are low. It should be noted that the use of I.Q. and chronological age is not the same as the use of mental age alone. This point is apparent from a

comparison of the sectioning produced by mental-age lines in Figure 3 and that produced by I.Q. and chronological-age cuts in Figure 5.

A practice that gives closely similar results, as far as the total homogeneity of I.Q., mental age, and chronological age is concerned, is that of using I.Q. and mental age¹ rather than I.Q. and chronological age. When the chronological age is used, the chronological-age range

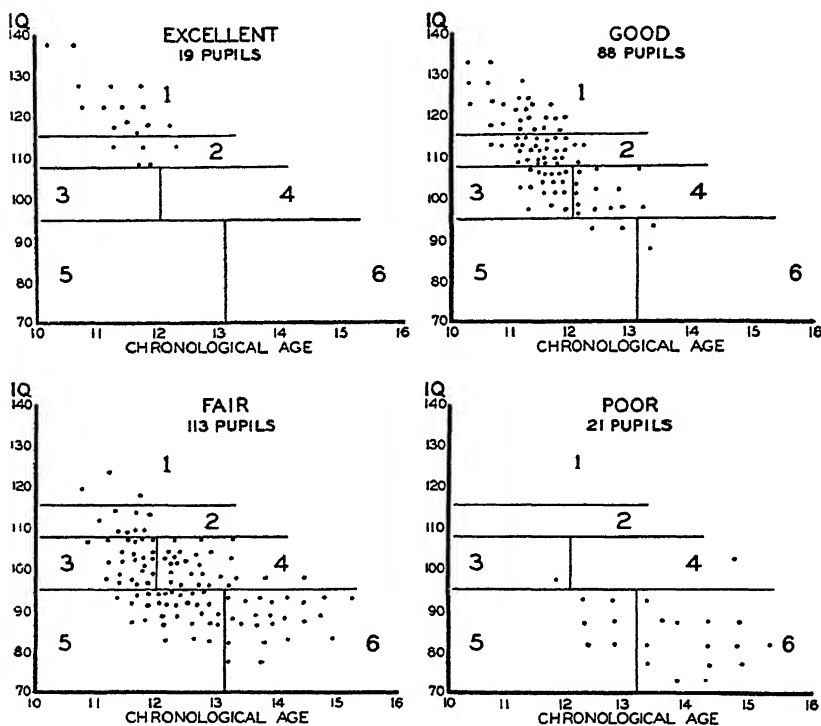


FIGURE 6.—THE 241 PUPILS, SECTIONED AS IN FIGURE 5, SEPARATED INTO PAST PERFORMANCE GROUPS (EXCELLENT, GOOD, FAIR, POOR) TO SHOW EXTENT OF HOMOGENEITY OBTAINED

of each group is more sharply reduced. Where mental age is used, the mental-age range is more restricted. We have several reasons for preferring to use chronological age as the secondary factor. A study of the scatters reveals that so far as past performance is concerned, mental age is a valuable criterion. The I.Q., however, is even better for this purpose. At the bottom of the I.Q. range, where an additional factor

¹ See Chapter VI.

must be added, a combination of I.Q. and chronological age is more valuable than I.Q. and mental age. We can therefore dispense with the use of mental age better than with the use of chronological age as a factor in determining groups. A second reason for preferring chronological age is that brightness and chronological age may be more readily visualized and identified than brightness and mental age. For example, "a ten-year-old pupil with an I.Q. of 120" is a description more significant to a teacher than "a pupil of 120 I.Q. with a mental age of twelve years." Moreover, chronological age is a better index of physical maturity and social development, which are becoming increasingly important considerations in modern educational thought. Finally, we desire to keep a distinct and fairly prominent record of the chronological age of each pupil so that teachers will be conscious of overage conditions existing within their classrooms and will therefore be alert to prevent any unnecessary aggravation of this situation by additional non-promotions.

IV. INTERPRETATIONS OF COURSES OF STUDY AND STANDARDS OF ACHIEVEMENT

1. Rigid Curriculum Differentiation Hampers Adjustment to Individual Differences

We have taken the position that ability grouping facilitates group and individual learning within the class. In accordance with this conception, when courses of study are differentiated into maximum, average, and minimum, they should be regarded as guides to the teacher in a more or less general adjustment of learning situations to the capacities and interests of the group. They should in no case be viewed as rigid and inflexible instructions for standardizing teaching procedure, for such a view would interfere with individualization and restrict the initiative of the teacher. Such differentiated courses of study should be used only as general guides from which the teacher is free to depart in making those finer adjustments necessary to effective learning.

School practices relative to standards of achievement are reflected in the interpretation of pupil performance, in the assignment of school marks, and in the prevailing promotion policy. Fixed standards uniform for all have no place in the elementary school. Any attempt to enforce a single standard on the group to which a pupil is assigned must of necessity interfere with the free play of adjustment to individual needs. Consequently, these adjustments are made solely on an

individual basis regardless of the presence or absence of ability grouping.¹ Many important adjustments are so intangible as to defy definition. Success in making them is the mark of the artist teacher. Other adjustments in standards can be guided effectively by objective evidence derived from the results of standardized tests of mental ability and school achievement.

2. Evaluation of Pupil Performance in Terms of Individual Standards

For interpreting achievement in school subjects in terms of individual standards of mental ability, teachers require a practical, simple method for translating measured mental ability into numerical standards for evaluating pupil performance. It is not enough to say that there is a strong tendency for pupils of high I.Q. to make scores on educational tests that are far in excess of the scores made by pupils of low I.Q. in the same grade. To be of use in the classroom the relationship must be reduced to a simple numerical expression. It is not to be expected that this relationship, dealing as it does with human variabilities, will always be exactly correct for each individual. In fact, it is essential that we regard any such numerical relationship as strictly applicable only to the hypothetical 'average' pupil. Nevertheless it gives us some help in evaluating individual performance. It is vastly superior to a standardizing city norm, or to an etherial concept such as 'better than average' or 'below average.'

The I.Q. and the C.A. have been presented as the two most important bases for grouping within a grade in order to restrict the ranges of abilities and social interests. Studies made in Philadelphia (Grades IV and V), however, indicate that within the relatively restricted range of a single grade, further differences in chronological age have little effect on pupil achievement, as measured by standardized tests, beyond that reflected by the I.Q., in which, of course, the factor of chronological age has already been included. Thus, within a given grade we find a distinct relation between achievement-test scores and I.Q.'s if the C.A. is held constant, but we find little relation between test scores and C.A.'s (or, by implication, M.A.'s) if the I.Q. is held constant. We have, therefore, felt justified in setting up individual standards within each grade on the basis of I.Q. alone.

There is also a fundamental theoretical consideration that forbids,

¹ Philip A. Boyer, "Use of Group and Individual Ability Standards in the Philadelphia Public Elementary Schools." *Schoolmen's Week Proceedings* (University of Pennsylvania, 1934), pp. 308-317.

except as it appears in the I.Q., the inclusion of C.A. (or M.A.) as a factor in the determination of individual standards. We cannot logically include C.A. as a factor in individual standards within a grade and at the same time include it as a factor in grouping into grades. The truth of this statement may readily be realized by considering the effect of including C.A. in the individual standard. If we included C.A., the resulting standards would be lower for underage pupils who had skipped grades and, on the basis of their performance in relation to these lower standards, we should be tempted to continue to accelerate them, setting up relatively lower standards at each succeeding grade level. On the other hand, the inclusion of C.A. would tend to set up too high standards for overage pupils and thus lead to still further retardation. The effect of including C.A. in the individual standard would be to increase underageness and overageness and, in consequence, to widen the ranges of chronological age within each grade.

If we accept the I.Q. as the basis for the individual standard within a grade, how much superiority over grade norms of educational achievement should we expect for each I.Q. point above 100? Let us take as representative of Grades III to VI the case of a 10-year-old pupil with an I.Q. of 110 and an M.A. of 11. With perfect correlation between M.A. and E.A. we should find an E.A. of 11 years for this pupil. This means a superiority of one year (10 educational-age months) above the norm for 10-year-olds. Since in actual practice we have something less than perfect correlation between M.A. and E.A., we should expect the typical 10-year-old with an I.Q. of 110 to show less than 10 months' superiority over educational-age norms for 10-year-old pupils. Furthermore, the average 10-year-old pupil with an I.Q. of 110 is accelerated, and the educational norm of the grade in which he finds himself is higher than the norm for 10-year-olds. Again, even with ability grouping, we find the typical pupil of high I.Q. located in a group in which the average I.Q. is somewhat lower than his. We have considerable evidence from Philadelphia studies that pupils of high I.Q. in classes in which the average I.Q. is low attain much lower test scores than do pupils of similar I.Q. in classes in which the average is high. Pupils with average or low I.Q.'s also do somewhat better in classes in which the average I.Q. is higher than their own.

We have, therefore, three limiting factors: the lack of perfect correlation between M.A. and E.A., the younger age per grade of the pupils of high I.Q., and the regressive tendency that places the typical superior pupil in a class in which average I.Q. is somewhat lower.

Each of these factors tends to reduce to a somewhat lower value the figure of 10 months of educational-age superiority for each 10 points of superiority in I.Q. For the average pupil of Grades III to VI in Philadelphia, we find the relationship to be 5 months of educational age for each 10 points of I.Q. This equation covers the common situation in which we find pupils of low I.Q. in groups of fairly low I.Q. and pupils of high I.Q. in groups of fairly high I.Q. A pupil of very high I.Q. in a group of very high I.Q. tends to show a superiority of slightly more than 5 months of educational age for each 10 points of I.Q., while a pupil of very high I.Q. in a group of low I.Q. tends to show a superiority of considerably less than 5 months. For example, the typical pupil with an I.Q. of 120 in a class of low I.Q. performs no better than the typical pupil with an I.Q. of 110 in a class of high I.Q.

3. Marking Systems

Any absolute system of marking breaks down when we adjust learning activities to the average capacities of groups or when we individualize the work in the classroom. Twenty-six representative elementary schools in nineteen states replied to the inquiry, "Do you differentiate your marking system for different ability levels?" Half the schools indicated that the same marks were used for all ability groups, but that marks were defined differently. In most cases it was indicated that "if a child is working up to his capacity, he is marked S or satisfactory and promoted." Detroit uses a different series of marks and Albany employs a letter subscript, as is indicated in the following quotation from the pupil's report card for Grades III to VI.

Subject Levels—Many subjects are offered in three degrees of difficulty designated as A, B, C levels. A, Advanced Requirements for those of superior ability and superior achievement in the subject. B, Regular Syllabus Requirements for the average pupil. C, A Special Level designed to meet the needs of those who are not able to cover the work of B. This C level does not meet the State requirements for entrance to Regents examinations. Marks on the C level are on the basis of effort rather than accomplishments.

Note—No letter appearing as a part of the rating indicates that all pupils work on the same level or have taken the same uniform examination, the latter marked in red ink.

Many systems are discarding numerical or letter systems of marking in favor of a single statement of satisfactory or unsatisfactory. Some

systems leave the entire matter of evaluation to the free and unstereotyped comment of the teacher. The major tenor of these comments is constructive and diagnostic, and their prime purpose is to maintain proper pupil attitudes toward school work and its relation to life activities.

In Philadelphia we use a marking system that retains some of the merits of an absolute scale but a minimum of its disadvantages. A mark of A stands for outstanding achievement in reference to the average performance of all pupils of a given grade throughout the system; B stands for achievement that is satisfactory for the individual concerned without reference to grade standards; and C stands for achievement that is not up to the level that we have reason to expect from the individual. In general, a mark of C corresponds to failing work and a pupil with a preponderance of such marks is likely to be failed at the end of the year. Because of this fact, marks of C are seldom, if ever, given to brilliant pupils who are doing work that is average or better, although it may be below the level to be expected from their capacities. In determining whether a mark of B or C should be given, its relation to possible promotion or non-promotion is taken into consideration. It is the policy of the school system to promote pupils unless there is reasonable evidence that a repetition of the work of a grade-section will result in a greater benefit to the individual child than will advancement to the next higher grade-section.

V. ADMINISTRATIVE REGULATIONS

1. The Need of Flexibility

Regulations concerning ability grouping should be flexible. In five representative schools in Philadelphia we have been conducting an experimental organization of ability grouping in which definite efforts have been made to control all important conditions, such as the bases of classification, the definition of groups, the size of class in each group, duration of teacher assignment to a given group, curriculum adjustments, and the use of objective tests.¹ These experimental schools have served as models to other units in the system.² Teachers and

¹ Philip A. Boyer. "The Philadelphia Experiment in Homogeneous Grouping." *Schoolmen's Week Proceedings* (University of Pennsylvania, 1930), pp. 241-257.

² A detailed account of procedures in the Patterson School is set forth in Chapter XIII of this Yearbook.

lative record not only of the measurements of intelligence, achievement, and school progress, but also of significant evaluations of health, character traits, interests, aptitudes, and probable needs of the pupil. When it is administratively possible to group pupils by ability, these individual record cards provide the basic data to determine grouping. After the grouping has been effected, it should be viewed by the teacher only as a device for restricting the range of pupil variation in order that the wide variety of individual differences that still remain may be dealt with more adequately. If the school is so small as not to permit the organization of ability groups, the teacher has the same responsibility and the same data upon which to make adjustments to individual needs.

Sufficiently wide diversity of abilities and interests is included within even the most homogeneous groups to foster individual initiative and to permit the exercise of specialized aptitudes and talents. As a safeguard against rigidity, some definite provision should be made for the transfer of pupils from one group to another upon evidence of ability to work more satisfactorily with another group. Such transfers, however, should seldom be necessary if the grouping was carefully made in the first place. They can be largely avoided by minimizing in the minds of parents and pupils the virtue of being transferred from one section to another. Little obvious attention should be paid to the existence of ability groups within the school. If the groups are numbered or lettered, this may be done in an irregular manner, *e.g.*, 5, 1, 4, 2, 3. Such an arrangement does not prevent pupils from discovering which section is the brightest and perhaps which is the slowest. Nevertheless, it tends to call less public attention to the differences that do exist.

5. The Determination of Mental Ability

The I.Q. used in grouping should be based on the results obtained from at least two group intelligence tests. Group intelligence tests are not only simpler to administer than individual tests; they have also the virtue of measuring abilities representative of important school activities.

In Philadelphia, the practice is to test all pupils in Grades IVA, IVB, and VIB with the Philadelphia Group Test of Mental Ability. Where ability grouping is used in the early grades, the Philadelphia First Grade Mental Ability Test is employed. The I.Q.'s are recorded on individual pupil record cards so that two or three I.Q. determinations are available for each pupil by the time he reaches Grade VII, where ability grouping is most generally employed. When more than

one I.Q. determination is available, the results are averaged. There is, however, some justification for using, as is done in Cleveland, the higher of two or the highest of three or more I.Q. determinations in deciding a pupil's placement in an ability group.

The Philadelphia I.Q. has a probable error of three or four I.Q. points. The probable error of the average of two I.Q.'s is less than three I.Q. points. If the difference between two I.Q.'s is as great as fifteen I.Q. points, the probable error of the average is larger than we can accept if we are to place much reliance upon the I.Q. of the pupil. In such cases the pupil should be retested, or, if this is not practicable at the time, the average I.Q. should be interpreted on the basis of the judgment of teachers who know the pupil. Every effort should be exerted to retest such pupils as soon as possible.

I.Q.'s obtained by dividing mental age by chronological age show systematic variation for bright and dull pupils when these pupils are retested after an interval of a few years. For this reason it has been suggested that a 'personal constant' should replace the I.Q. as a measure of brightness. In Philadelphia, we have preferred to retain the I.Q. rather than to introduce unfamiliar terminology and start anew to train teachers in its meaning and use. Within the limits of our ability to measure it, the I.Q. can be computed in such a way as to eliminate systematic variation. This we have approached in the computation of our I.Q. tables, in which we have assumed that mental ability of a verbal type increases, at a decreasing rate, from about the age of one year to about twenty-five years. These assumptions are not unreasonable, and the result of their use is an I.Q. that remains constant for practical use in interpreting the school performance of pupils in relation to ability.

6. Interpretation and Use of Mental Ability Records

Records of the I.Q.'s of pupils should be kept in the hands of the teachers, for such records will have many uses in addition to that of making the original distribution of pupils into ability groups. They should enable teachers to understand pupil reactions better and to make more sympathetic evaluations of pupil performance. Difficulties may arise from intelligence testing if I.Q.'s become known to parents and pupils. A safe plan is to reserve these records strictly for the personal use of the teacher and principal in a professional capacity. If parents desire to know a child's I.Q., they may be directed to agencies other than the school.

Teacher participation in intelligence testing may be utilized to a limited extent only, but teacher responsibility for the use and interpretation of I.Q.'s is inescapable. The pupil's educational record card used in Philadelphia provides a space for three intelligence-test records on each side of the card. The average of the I.Q.'s to date is used in determining pupil classification. Beside this record of the average I.Q. is what we call an "ability correction," to be applied to the grade standard in order to obtain an individual pupil standard. These corrections and standards are in terms of a standard-score scale, each unit of which is equivalent to the average gain in performance made by large groups of pupils during one half-year of school work. The ability corrections we use range from -2 to $+2$, indicating that the achievement expected of an individual pupil may vary from two half-years below to two half-years above the city average for the grade-section. The educational record provides for a prominent entry of the pupil's chronological age, which is interpreted in terms of the normal age limits for the grade.

In whatever ability group a given pupil is working, his general school achievement and his objective test scores are evaluated in the light of his own individual standard of attainment. This evaluation is not made merely as a mechanical comparison between ability standards and school achievement, but with clear recognition that the achievement of an individual pupil in various phases of school work must be expected to deviate from the average of his own achievements, as well as from the average of the group of which he is a part. There is no longer any attempt to evaluate individual pupil performance in terms of national or city norms and, consequently, no effort 'to bring everybody up to the average.' If an individual pupil is to be understood thoroughly and guided effectively, his objectively measured performance must be interpreted in terms of all the conditions that have operated to bring about such performance. Prominent among these conditions are the characteristics of the group in which the pupil has been working and his own individual mental qualities and emotional reactions. Ability grouping, as we have interpreted it, enhances the effectiveness of both group and individual learning activities by aiding the teacher to know the pupil better and to guide him more wisely.

7. The Value and Control of the Teacher's Attitude

Among the many factors contributing to the success of any plan of school administration, and particularly to the success of plans seeking

individual and group adjustments to pupil needs, the teacher's attitude stands out as the most important. The administrative plan may be theoretically perfect, but its practical application in the classroom is the sole safe criterion of its worth. However much we may do to train, direct, and influence the performance and attitudes of the teacher, the fact remains that what she thinks, and what she does as a result of her thinking, determine the success or failure of the plan. It is important, therefore, that we take cognizance of the interests and attitudes of the classroom teacher toward ability grouping in order that we may be guided in the formulation of future plans as well as in the evaluation of present success.

Some years ago a study of the teacher's attitude toward differentiated ability groups indicated that in Philadelphia one-fourth of the teachers had a very definite dislike for the kind of work involved in teaching a low ability group, and only one-seventh of the teachers professed either to like to teach the lower ability group or to have no preference in the matter. Among the factors listed by the teachers as influencing their opinions, the most prominent were these: (1) classes are too large to permit the necessary individualization of instruction; (2) disciplinary problems are increased; (3) children are held to too high standards; (4) teachers are not given sufficiently definite help in methods of teaching, and secure little encouragement from the meagre achievements of pupils. It should be noted that these reasons are related to the general problem of motivating pupils through the satisfactions of success on levels of performance adjusted to their capacities.

In the years that have elapsed since these observations were made, we have introduced into the system the plan of determining both group and individual standards of pupil achievement in relation to the measured capacities of these groups and individuals. The use of the achievement expectancy for class, grade, and school groups, and of the ability standard for individual pupils, has been supplemented with practicable devices for the adjustment of teaching contacts to the average needs of groups and to the variant needs of individuals within those groups. These practices have effected an improved attitude on the part of teachers toward their responsibility to secure from each individual a level of performance commensurate with his capacity and have tended to produce a scientific and unemotional attitude toward different levels of pupil performance. We now have a much larger number of teachers who actually prefer to work with pupils of the low ability groups. By

the same token, teachers of high ability groups are coming to realize that there can be no resting on laurels and that success with these groups means school performance of high order with ample enrichment at each grade level.

Our experience in Philadelphia indicates that basic ability grouping within grades restricts the ranges of certain fundamental pupil differences and thus develops improved learning situations for attaining the broadly social as well as the more narrowly academic aims of education. Much is still to be done in the way of breaking down what remains of the traditional attitude toward common, uniform standards of achievement, and in building up an individualization of treatment based upon a thorough knowledge of the abilities, performance, interests, and needs of each pupil.

VI. SUMMARY

1. Ability grouping must be defined in such a way as to preclude the possibility of rigidly standardized procedure on any group level. It must promote the effective educational growth of pupils by providing social settings significant for both group and individual activity.

2. Ability grouping reduces the range of certain basic individual differences usually found in the grade group and thus aids in the effective adjustment of learning activities. Temporary or supplementary groupings for specific purposes can and should be formed within the several ability groups, or they may cut across these groups. Regulations concerning ability grouping should be sufficiently flexible to foster the close adjustment of the administrative device to local conditions in school or community.

3. For sectioning pupils into basic ability groups within the grade group, the most desirable, simple, and practicable bases are I.Q. and C.A. In the elementary school, records of past performance should be considered as supplementary bases only.

4. In evaluating and interpreting the achievement of a pupil within a given grade, the best single criterion is the I.Q. This must be recognized as a suggestive, rather than a rigid and exact, basis for adjusting the major school work of the pupil to levels that approach his capacity for achievement.

5. The adjustment of standards of pupil performance to individual abilities makes necessary a relative scale of marks and relative standards of advancement from grade to grade.

6. If ability grouping grows out of a recognition of individual dif-

ferences, many of its present difficulties and shortcomings will be avoided. Teacher attitudes toward ability grouping are influenced largely by the extent to which they know each pupil sufficiently well to recognize in him a distinct educational problem and by the degree to which they appreciate the value of common group experience as a vital educational force.

CHAPTER XII

THE ADMINISTRATION OF GROUPING IN SECONDARY SCHOOLS

ROY O. BILLET
Professor of Education
Boston University, Boston, Massachusetts

I. THE NATURE OF THE GROUPING PROBLEM

1. A Real Source of Administrative Uncertainty

The practical secondary-school administrator faces the problem of grouping for effective pupil development in situations at once real and specific. He need not be told that in a program of universal secondary education the tutorial method has only minor applications; that he cannot provide a Rousseau for each *Émile*; that in the main, individual learning must take place in a group setting; that, even if the group setting were not necessary, it would still be desirable. He has come to accept as axiomatic the generalization that intelligent participation in the group activities of the school is one important way to prepare youth for intelligent participation in the social and economic groups in which they will assume independent and self-directing membership, when released from the guiding and directing influence of the school. These statements, the secondary-school administrator already regards as true.

The real problem of the informed administrator originates, not in any uncertainty concerning the necessity and desirability of forming groups, but in determining the kind or kinds of groups that should be organized to promote most effectively the educative growth of the pupils, as they react and interact in the educative situations that collectively constitute the school. This problem cannot be solved, as the uninitiated might think, by wide and thoughtful reading about the question of grouping; for he reads little who does not know that theorists hold opposite views about the subject and that even experimentalists disagree, sometimes explosively, concerning the validity and interpretation of experimental studies of different types of grouping. The ever-so-well-informed administrator, in his efforts to group pupils for optimal educative growth, would still find his vision restricted by

the mists of insufficient data and the fogs of conflicting interpretations of available data that now obscure many important aspects of the problem.

Nevertheless, he cannot declare a school holiday until these mists melt away under the penetrating rays of careful thought and investigation certain to be given the problem as time elapses. He must move forward regardless of mist and fog, and he must move as effectively and safely as present conditions of visibility will permit. In advancing, he will not disregard the opinions of informed people because they are conflicting or seemingly so. He will not deprive himself of such benefits as may be had from a consideration of the extended thought and experimental study that others have already devoted to the problem. Yet, ultimately, he must formulate for himself a tentative policy to govern the organization of pupils for participation in the various activities of his school; and he must do this, not next year or the year following, but now. Whatever policy of grouping he may put into effect will be an expression of his best, but individual, judgment as to what should be done to promote the greatest good of the greatest number of pupils in secondary-school situations that actually exist, not in certain hypothetical situations that might be postulated.

2. Types of Educative Situations Provided in the Modern Secondary School

The administrator will find in the literature on grouping for effective pupil development that the subject is discussed more often than not as if the secondary school presented to pupils but one type of educative situation, and that, of course, the classroom. Paradoxically, such an approach prevents proper perspective even of what grouping should be like in the classroom. Any comprehensive program of grouping for effective pupil development must result from a careful consideration not only of the classroom but also of several other important educative situations provided in the modern secondary school, such as, (1) the total group composing the school, (2) the smaller groups represented in the homeroom, advisory and guidance program, and (3) the smaller groups represented in the extracurricular program. So far as the educative growth of the individual pupil is concerned, all these educative situations operate simultaneously. Through all, not through any one, the pupil achieves the objectives of secondary education if he achieves them at all. For this reason, the administrator who would group pupils for most effective development in any one of these

situations must keep in mind the type of grouping adopted in each of the other situations. If he would maintain the proper perspective, his thinking about the problem of grouping must be orientated continuously by reference to the basic issue at stake.

3. Homogeneity Interpreted as Reduced Heterogeneity

a. The Fundamental Issue. Unquestionably the basic issue involved in grouping pupils for effective development in any educative situation is the issue of homogeneity versus heterogeneity. So far as the writer can see, the administrator faces one simple, fundamental, and inevitable question whenever he would organize any group in any educative situation provided by the school. Shall the group be homogeneous or heterogeneous? These two words are the prongs of the dilemma. Hence the administrator should decide at once the extent to which these words have meaning when applied to the real groups with which he must work. Fortunately, concerning the meaning of the words at least, he can appeal to authority. The New International Dictionary states that a group is *homogeneous* if the individuals composing it are "of the same kind or nature"; and it is *heterogeneous* if the members of the group "differ in kind, have unlike qualities, or possess different characteristics." Reflection on these meanings is disconcerting, for it reveals to the administrator that the only sense in which a group of pupils can be homogeneous is the sense in which any and hence all groups of pupils are homogeneous; that is, in the sense that the group consists of *homines sapientes*. This seems to reduce the whole question of homogeneity to an absurdity. That is, securing homogeneous grouping — in the only sense in which it is realizable — seems to burden the administrator with a problem no greater than that of keeping stray dogs and cats out of the building. He can be pardoned, therefore, if he decides that the term *homogeneity* should be replaced by the expression *reduced heterogeneity*, which, after all, is the only sense in which homogeneity can be meaningful in a practical discussion of grouping. In other words, trying to secure homogeneity of traits, qualities, or characteristics in any given group; pursuing a will-o'-the-wisp; and reaching for the moon are obviously all in the same category. Moreover, since every group is more or less heterogeneous, the administrator will find it necessary to reserve the term *heterogeneous* to describe a group that is a chance, or random, sampling of the total group from which it is derived, and that therefore exhibits approximately all the ranges and

diversities of traits, qualities, and characteristics exhibited by the total group. Finally, since each pupil is such a bewildering complexity of traits, qualities, or characteristics, if one wishes to be coherent, he should speak of but one trait, quality, or characteristic at a time, in referring to the degree of heterogeneity or of reduced heterogeneity of a group.

TABLE I.—DISTRIBUTIONS OF INTELLIGENCE QUOTIENTS IN SEVEN HETEROGENEOUS CLASS SECTIONS IN NINTH-GRADE ENGLISH

<i>Terman</i> <i>Intelligence</i> <i>Quotient</i>	<i>Period</i> <i>I</i>	<i>Period</i> <i>I*</i>	<i>Period</i> <i>II</i>	<i>Period</i> <i>VI</i>	<i>Period</i> <i>VIII</i>	<i>Period</i> <i>IX</i>	<i>Period</i> <i>X</i>	<i>Total</i>
133-138				1				1
127-132	1		1		1	2		5
121-126	1	2	5	4	1	1	3	17
115-120	2	2	3	6	3	1	1	18
109-114	1		7	9	4		8	29
103-108		1	6	7	2	4	7	27
97-102	1	2	5	2	5	14	5	34
91-96	6	4	4	3	6	7	7	37
85-90	8	8	3	1	7		1	28
79-84	3	7	1	3	1	4	1	20
73-78	1	3			1		1	6
Total	24	29	35	36	31	33	34	222

* A second section meeting during the first period.

b. The Issue Illustrated. In illustration, one can speak of the degree of heterogeneity of a group of 222 pupils, composing the entire ninth grade of a certain secondary school, from the standpoint of general mental ability as indicated by the intelligence quotient derived from the Terman Group Test of Mental Ability (Table I). The degree of heterogeneity can be expressed numerically in terms of intelligence quotients ranging in this instance from 73 to 138. Obviously, in the grade chosen for illustrative purposes no effort has been made to reduce the heterogeneity of the pupils composing each of the class sections. Hence each class section may be regarded as a chance sample of the total grade or as a heterogeneous group produced by the accidents and exigencies accompanying the making of a daily time schedule. The results speak for themselves. For all practical pur-

poses each class section is just about as heterogeneous as the entire grade, so far as general mental ability is concerned. Such groups furnish a working standard of what constitutes heterogeneity.

Reduction of heterogeneity in this instance would result from conscious efforts to insure that no class section include pupils of such wide ranges of general mental ability as the range existing in the total grade. The amount of reduction, and hence the type of classroom group would vary of course with the purpose and procedure of the administrator. A great reduction in heterogeneity would be made if the pupils were empirically rescheduled as follows: Assign to one class group 26 pupils having intelligence quotients of 73-84; to a second group, 28 pupils having intelligence quotients of 85-90; to a third group, about 30 pupils having intelligence quotients of 91-95; to a fourth group, about 35 pupils having intelligence quotients of 96-100; to a fifth group, about 34 pupils having intelligence quotients of 101-108; to a sixth group, about 34 pupils having intelligence quotients of 109-117; and to a seventh group, about 35 pupils having intelligence quotients of 118-138. Such a reclassification would reduce the total range of intelligence quotients from about 50 points in each chance group to ranges of from 5 to 21 points in each of the reclassified groups.

Obviously, these reclassified groups are not homogeneous groups, but groups in which chance heterogeneity of a given trait (in this case intelligence quotient) has been reduced. It is important that the obtained reduction in heterogeneity be recognized for just what it is. It does not insure, or make it probable, that the reclassified groups will show an equally reduced range in physical ability, musical ability, artistic ability, or mechanical ability; or even any equivalent reduction in the diversities of the many achievements, aims, interests, and needs significant for education. If the administrator wants greatly reduced heterogeneity in any one of these respects, he must take into consideration other facts about the pupils than their intelligence quotients.

The foregoing illustration happens to deal with a classroom situation. It is intended to suggest that much of the mystery superinduced around the whole question of grouping for effective child development, simmers down to this: "What can and should be done about reducing the heterogeneity of the groups interacting in the educative situations that collectively constitute the school?"

4. Scope of This Chapter

In this chapter brief discussions of the four principal educative situations provided in the modern secondary school will be attempted, *seriatim*, with a view to setting forth the practical procedures available to the administrator in each situation in the matter of grouping pupils for most effective educative growth. The total group composing the school will be discussed first, because it determines the nature of the lesser groups that can be formed within the school. The classroom situation will be discussed last, because, as usually considered, it is not given the perspective of the other three situations.

II. TYPES AND FUNCTIONS OF PUPIL GROUPS IN THE SECONDARY SCHOOL

1. The Total Group

In communities large enough to maintain more than one high school an important administrative question relating to grouping for effective pupil development arises as to what kind of total group shall compose each secondary school; in other words, shall the high school be 'comprehensive' or 'special-type'?

If the comprehensive high school is chosen, the total group will be a cross-section of the community. It will consist of pupils from all social and economic classes, of all ranges of general and special abilities, and of the greatest diversities of interests, aims, and needs attainable within the community concerned; in short, the total group will be as heterogeneous as the community. If the special-type high school is chosen, then a reduced heterogeneity, at least in aims and needs, is secured.

Which is the better administrative procedure? Let us frankly admit that no conclusive answer based on objective data can be made to this question. This will not dismay the administrator. Most of his decisions are based on inconclusive data. It is his job to consider all available facts and then *do* something. Having considered the facts, he will see that the trend of evidence is toward the comprehensive high school. However, in the writer's opinion, the strongest argument for the maximal heterogeneity represented in the comprehensive high school is philosophical rather than objective. This argument takes its cue from the recognized necessity of preparing pupils for participation in the democratic way of living. Briefly, a society may be conceived

to function as a democracy to the extent to which each member (1) recognizes that a common welfare exists, (2) understands and appreciates the coöperative efforts necessary to promote this common welfare, and (3) possesses the capacity, the opportunity, and the inclination to coöperate in achieving the greatest good for the greatest number. In this society, individual activity necessarily takes place in a number of subordinate social and economic groups to which the individual belongs and of which society as a whole is composed. The subordinate group is organized and functions democratically if each member (1) recognizes the common goals of the group and the consistency of these goals with the goals of the social order of which the subordinate group is a part, (2) understands and appreciates the coöperative efforts necessary to attain the goals of the subordinate group, (3) has the capacity, the opportunity, and the inclination to coöperate in the achievement of the goals of the subordinate group, and (4) enjoys the right to move from any social or economic group to any other social or economic group without hindrance or prejudice, whenever his abilities, achievements, and interests make such a change desirable.

Many administrators believe, although of course they could not prove it, that preparation for this way of living known as 'democracy' is most likely to be achieved when all secondary-school pupils have the opportunity to identify themselves as members of a total group that is heterogeneous enough to include all ranges of all types of general and special abilities, and all diversities of interests, needs, and aims represented in the community being served by the school. They recognize not only that the nature of the total group conditions the characteristics of the smaller groups to be formed within the school, but also that the total group is itself a unique educative situation independent of the educative situations obtaining within the small groups into which the total group must be subdivided if guidance and direction of learning are to take place. Therefore, many administrators regard the comprehensive high school as the first step in providing for pupils a miniature society that is like the adult society in which the pupils will later participate and that operates on the basic principles that characterize the democratic way of living. They believe the daily interaction of all these various types of pupils under one roof to be most conducive to the development of that understanding, sympathy, and appreciation without which "the greatest good of the greatest number" is an empty phrase.

2. The Homeroom, Advisory, and Guidance Groups

One of the important types of subordinate groups organized within the total group of the modern secondary school is the homeroom, advisory, or guidance group. These three types of groups may or may not be identical in purpose and program, but the type and degree of heterogeneity desired in one are, for most purposes, the type and degree desired in the others. In fact, in many schools the terms are synonymous, because most or all of the group advisory and guidance work is done in the homeroom. Also, in addition to being a factor in the realization of the more technical aims of guidance, the homeroom group is a means of promoting acceptable conduct and social adjustment.

In organizing the homeroom group, any one of three administrative practices involving different degrees of heterogeneity may be employed. First, if the pupils of a given grade have been segregated into ability groups for classroom work, the same kind and degree of reduced heterogeneity may be carried over into the homeroom. This practice prevails in 17 of 54 secondary schools contributing data to this discussion (Table II, Item 9, Column 9). Second, even though some type of reduced heterogeneity is used in organizing classroom groups, the homeroom groups may still be so formed that each homeroom group is approximately as heterogeneous as the grade to which the pupils belong. This practice exists in most of the 54 schools contributing data to this study (Table II, Item 9). Third, the homeroom group may be organized to approximate a cross-section of the entire school instead of one grade; that is, in a typical four-year high school a homeroom group of 40 pupils might include 13 ninth-grade, 10 tenth-grade, 9 eleventh-grade, and 8 twelfth-grade students.

No extended discussion of the advantages and disadvantages of each of these three types of homeroom groups will be attempted here. The administrator should recognize, however, that the potential educative situations created by the three types of grouping are profoundly different. Conclusive objective evidence of the comparative educative outcomes of the three types of homeroom groups is utterly lacking. Nevertheless, both theoretical considerations and the reported results justify further experimentation with the third type.¹

¹ For a brief discussion of the advantages and disadvantages of this type of homeroom group, see W. S. Learned, *Study of Relations of Secondary and Higher Education in Pennsylvania* (Progress Report III, 1931, Carnegie Foundation for the Advancement of Teaching, New York City).

TABLE II.—ITEMS OF PRACTICE RELATED TO REDUCED HETEROGENEITY
REPORTED FROM FIFTY-FOUR SECONDARY SCHOOLS

<i>Items of Practice</i>	<i>Numbers and Types of Schools Reporting Each Practice</i>							
	Grades 7-9 *22	Grades 6-8 *4	Grades 7-8 *4	Grades 8-11 *1	Grades 9-12 *6	Grades 7-12 *1	Grades 10-12 *13	Total *51
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Definite standards as to number pupils desirable in a class-section.	17	4	1	1	4	1	8	36
2. Undesirable deviation from above standards.	16	3	0	1	4	1	8	33
3. Special form for recording data on each pupil prior to classification.	12	4	1	0	3	0	9	29
4. Differentiated marking system.	12	2	1	0	2	1	2	20
(1) Different series for different levels. .	3	0	0	0	0	0	0	3
(2) Same marks differently defined for different levels.	9	2	1	0	2	1	2	17
5. Trial promotion employed.	9	2	1	0	1	1	4	18
6. Diplomas awarded at end of Grade 9.	9	—	—	—	—	—	—	9
7. Twelfth-grade diplomas individualized. .	—	—	—	—	2	0	1	3
8. Informal objective tests built for local use in grouping.	2	0	0	0	2	0	1	5
9. Pupils of given ability group segregated in:								
(1) All subjects	14	4	4	0	2	1	1	26
(2) Homeroom	11	3	2	0	0	0	1	17
(3) Advisory or guidance periods	10	3	1	0	0	1	2	17
(4) Gymnasium work	5	0	4	0	0	0	0	9
(5) Extracurricular activities	0	0	0	0	0	0	0	0

* Total number of schools of each type, and total of all types. Three schools reported no efforts at reduced heterogeneity.

3. The Extracurricular Groups

In the extracurriculum of the modern secondary school the administrator is responsible for a large number of groups of pupils who should be deriving valuable educative experiences from the activities in which they engage. The scope and possibilities of the extracurriculum as an educative situation are illustrated by the fact that in a study of 24 outstanding secondary schools, Reavis and Van Dyke found 606 different extracurricular groups classifiable under the seven headings shown in Table III.¹

TABLE III.—TYPES AND FREQUENCIES OF EXTRACURRICULAR GROUPS IN TWENTY-FOUR OUTSTANDING SECONDARY SCHOOLS (ADAPTED)

<i>Classification</i>	<i>Frequency</i>
1. Student government, school service, and honorary organizations	51
2. Social, moral, leadership and guidance clubs	66
3. Departmental clubs	153
4. Publications and journalistic organizations	33
5. Dramatic clubs, literary societies, and forensic activities	57
6. Musical organizations	66
7. Special-interest clubs	180
Total	606

These nonathletic, extracurricular groups are, of course, supplemented by numerous other extracurricular groups participating in the many phases of athletics, including intra-mural games and sports.

Fundamentally, all extracurricular groups are interest groups. Frequently, interest is supplemented by certain special abilities or achievements or both, as in the case of most musical organizations, journalistic organizations, dramatic, literary, or forensic groups, and athletic groups; and sometimes interest and special ability or achievement are supplemented by much more than average general mental ability, as is often the case with pupils holding such positions as editor-in-chief of the school newspaper or the president of the student council. Nevertheless, the extracurricular group comes into being in response to the demands of an interested group of pupils and ceases to exist when this interest disappears, as it frequently does. For example, Reavis and Van Dyke,² in studying 391 different, nonathletic, extra-

¹ William C. Reavis and George E. Van Dyke. *Non-Athletic Extracurriculum Activities* (Bulletin No. 17, 1932, Monograph No. 26, National Survey of Secondary Education, United States Office of Education), pp. 78-84.

² *Op. cit.*, pp. 10-12.

curricular activities, with histories extending from one to thirty-one years, found that 82 of these activities lasted only one year; 52, two years; 40, three years; 31, four years; 23, five years; 74, from six to ten years; and only 89, from eleven to thirty-one years.

From the nature of the extracurriculum it is evident that the personnel of a given group should not be determined by administrative assignment. Grouping for effective pupil development in the extracurriculum may be trusted to take care of itself under appropriate regulation and guidance. Yet it would be a mistake for the administrator, in deciding on a general policy of grouping for effective pupil development in all the educative situations of his entire school, to overlook these groups and the nature of the incidental learning products probably accruing to pupils as a result of participation in them. These groups, in general homogeneous only from the standpoint of interest, not only permit the pupil to pursue some worth-while group activity for its own sake, but also afford each pupil a valuable opportunity to know intimately boys and girls of widely varying capacities, achievements, aims, and social and economic backgrounds; in a word, to know all types of people who are to compose the democracy wherein all are to coöperate in realizing the greatest good of the greatest number.

So far, this discussion has been intended to suggest that the administrator is likely to insure more advantages than disadvantages to his pupils if he so organizes his school that the individual pupil is a member of (1) a total group as heterogeneous as the community; (2) homeroom, advisory, and guidance groups that are cross-sections of the total group; (3) one or more extracurricular groups highly heterogeneous in most attributes other than interest.

This heterogeneity seems justified from a consideration of the educative values likely to accrue to the pupil as a result of his participation in these groups and in the types of classroom groups later to be suggested.

4. The Classroom Groups

Now, what about the four, five, or more classroom groups to which the individual pupil belongs? Shall they be as heterogeneous as chance will undoubtedly make them or should this heterogeneity be reduced by administrative means? If heterogeneity is to be reduced, from what standpoint should it be reduced? From the standpoint of interests, as in the extracurriculum? From the standpoint of life aims,

as in the different curricula? From the standpoint of needs, as in classes for remedial work? From the standpoint of ability? If ability, what ability? Shall the concept of a 'general ability' (Spearman's 'g') be tentatively accepted as a basis for reduced heterogeneity in all or some classrooms?¹ (If so, the general mental test or a well-chosen battery of achievement tests will furnish as good an indication of this general ability as can be obtained at present.) Shall specific abilities be accepted as important supplements to general ability as a basis for reduced heterogeneity in some classroom situations involving activities in such fields as music, art, practical arts, and physical education? If so, how shall these specific abilities be measured? By such standardized prognostic tests as are available? By locally constructed informal objective examinations? By some rating or record of the pupil's previous growth in these specific fields?

One would be rash, indeed, to attempt any hasty or final answer to these questions. Tentative answers must depend in part on one's conception of what pupils should do in the classroom, and why they should do it; that is, on the nature and objectives of the educative activities in which pupils engage in the classroom. Sooner or later, these questions must be faced: What should pupils do in the classroom? And how? And why?

III. THE ADMINISTRATIVE ISSUES INVOLVED IN CLASSROOM GROUPING

1. The Functions of a Controlled Classroom Environment

Schools exist to help each pupil to learn to behave as intelligently as his natural endowments will permit. Through achieving his maximal capacity for intelligent behavior, the individual will attain to his maximal capacity for esthetic, ethical, sane, happy, and intelligent living. Reflection should convince the reader that this thought is in no way incompatible with recognition of the fact that a small percentage of youth must be provided through education with all possible compensations for their relative lack of capacity to achieve intelligent behavior. Yet native capacity to learn to behave intelligently is not the same thing as intelligent behavior. Intelligent behavior is not some power or entity lurking within the individual, waiting its liberation or its opportunity to unfold. The capacity to behave intelligently is a relative and changing capacity resulting from one's ex-

¹ Cf. Dr. Turney's discussion in Chapter VI.

periences with his social and physical environment and from his insight into the meaning of those experiences. Intelligent behavior is the functioning of an integrated pattern of concepts, attitudes, appreciations, knowledges, and skills which constitute the ever-changing psychological self. This integrated pattern cannot produce intelligent behavior in a given situation if important concepts, attitudes, appreciations, knowledges, or skills are lacking in its structure. For example, in some situations one cannot behave intelligently until he knows where to place his commas; or until he understands that man gets less energy out of a machine than he puts into it; or until he realizes that bad money drives out good; or until he is aware of the part played by chlorophyll and the sun's rays in the production of the world's food supply; or until he comprehends the fundamental differences in ways of living implied in monarchism, communism, fascism, and democracy; or until he has the ability to swim; or until he knows which fork to use, if any; and so on, *ad infinitum*.

Intelligent behavior itself is a changing concept. The integrated patterns of concepts, attitudes, appreciations, knowledges, and skills that produced what passed for intelligent behavior in the days of King Tut-Ankhamen were very different from the integrated patterns that will produce what passes for intelligent behavior to-day.

At least in this generation, some concepts, attitudes, appreciations, knowledges, and skills are known by intelligent, educated adults to be far more essential than others to the integrated pattern that produces intelligent behavior as life is now lived. Certainly, to live is to develop some kind of pattern of potential behavior; but unguided and undirected living has proved itself wholly inadequate to produce an effective pattern for this complex modern day. Hence schools have a reason for existing. In these schools under guidance and direction of intelligent teachers, pupils are to engage in those activities and to have those experiences, both real and vicarious, which will insure, so far as possible, that the integrated patterns of their potential behavior do not suffer from vital omissions.

Although each pupil day by day must weave the flexible, changing pattern of his own potentiality for behavior, nevertheless he weaves it from the experiences that he has, and these in turn are determined by the educative situations in which his experiencing takes place and by such limitations as heredity has set upon the rate and complexity of his educative growth. Hence, so far as possible, his present experiences must be suited to the rate, present level, and potential com-

plexity of his educative growth; and his time must not be frittered away in repeating experiences that the race has found valueless, if not actually harmful. Somehow, youth must be provided with a short-cut to certain vital and significant experiences of the race. Where he goes from there let new times, new occasions, new experiences, and his own genius determine.

As secondary schools are now constituted, the classroom is a large part of the environment in which pupils are provided an opportunity to repeat the vital and significant experiences of the race. This classroom environment is conceived as a controlled environment in which pupils are engaged in activities related to their immediate interests and needs, yet rich in possibilities of yielding to the pupils vital and significant concepts, attitudes, appreciations, knowledges, and skills — the stuff of which intelligent behavior is made.

It does not seem unreasonable to suspect that the teacher's task of direction and guidance would be unduly complicated if the pupils composing the classroom group differed excessively either in (1) rates of growth and integration, (2) potentialities for complex integration, or (3) present levels of integration. The point would seem hardly debatable if a rather extreme case were posited as, for example, that of a teacher who might try to direct the educative growth of a classroom group composed of typical seventh- and twelfth-grade pupils. The point is less obvious if the classroom group is composed of pupils of a single grade, and it is about the latter type of classroom group that the administrator seeks to reach a decision.

2. The Function of Subject Matter and Its Relation to Reduced Heterogeneity

So far, the thoughts of our imaginary administrator have been concerned with discovering any possible conflict between reduced heterogeneity and the directed educative growth of his pupils. Finding none, he considers the possibility that his teachers, after all, are not directing the educative growth of the pupils. At least, they seldom employ such terminology. They talk about teaching different 'subjects' to pupils. What bearing has this on the question? On reflection he may decide that classrooms have been, and in many cases still are, places where pupils are taught such subjects as English, social studies, science, mathematics, foreign language, commercial subjects, practical arts, and physical and health education. All too often these subjects have become ends in themselves, unrelated to the immediate interests

and needs of the pupils, empty verbalisms and formulae presented by undue emphasis on drill and rote memory, and the results, if any, justified, like the contents of an attic, on the ground that they may be of use sometime.

But he is not convinced that subjects need be used that way. Collectively, so far as he can see, subject-matter fields are a record of the vital and meaningful experiences of the race. Separately, each is a sector of this racial experience. In this record the intelligent teacher finds clues both as to what constitutes intelligent behavior, and as to the types of classroom activities most likely to produce in the pupils the desired potentialities for intelligent behavior. Conceived as dynamic, changing from year to year and from day to day as the race accumulates new insights, these much misrepresented and misused subject-matter fields are not only necessary sources, they are, indeed, the only sources of objectives for directed and guided classroom activity. This holds true regardless of the degree of fusion or integration of subject matter existing or advocated. Integrated units of subject matter are still subject matter. Integrated units of classroom activity must get their reason for existing, in a guided and directed classroom environment, from integrated 'learning units' derived from subject matter and tacitly or overtly recognized as teacher objectives.

Teachers as well as pupils must have goals or objectives. Rarely are teacher goals and pupil goals identical. The teacher's goal is always concerned with some aspect of improved, flexible patterns of potential behavior for the pupils — with increasing their capacities to behave intelligently. The pupil's goal is preferably something that seems to him to be worth having for its own sake. The activities performed by the pupil in achieving his goal, however, lead out to the teacher's goal; namely, to a definite increase in capacity to behave intelligently.

The chief differences between poor teachers and good are (1) that the latter are far more successful in recognizing the fundamental concepts, attitudes, appreciations, knowledges, and skills that form the basis for intelligent behavior in this present day; (2) that they are much more successful in recognizing the approximate levels from which and to which the individuals composing a given group of pupils may be expected to grow, in these fundamental aspects of intelligent behavior, in a given situation, and during a given period of time; (3) that they are much more successful in recognizing and planning for the types of activities that will at once both appeal to the pupils as worth

while and result in the desired educative growth; (4) that they are much more intelligently aware that, although not all types of activity can be expected to produce a desired increment in educative growth, nevertheless, pupils may usually be given a wide choice in the activities in which they will engage and yet achieve the primary goal that the teacher would like to see them achieve, with reasonable and desirable variations in concomitant, incidental learning-products.

Undoubtedly, heredity has set for each pupil definite limits to both the rate and the complexity of his possible educative growth. So widely do pupils vary in the rate and complexity of their educative growth that, no matter what aspect of pupil development one may wish to consider, it will be possible to find some ninth-grade pupils who surpass some twelfth-grade pupils in that aspect. These differences exist partly because of differing heredity and partly because of the differing environmental influences to which the pupils have been subjected.

As a result of such considerations as the foregoing, the administrator decides to proceed tentatively as if the following generalizations were true: (1) classroom learning should be guided and directed; (2) the pupils composing any grade vary widely in the levels, rates, and potential complexity of their educative growth; (3) subject matter, integrated or otherwise, not only may be, but also must be, used both as a source of suggestions as to what constitutes educative growth and as a source of suggestions as to appropriate pupil activities; (4) from the standpoint of any individual pupil the several subject-matter fields vary widely in relative value, both as sources of objectives of pupil growth and as sources of suggested activities for promoting pupil growth; (5) an analogous statement holds for the elements composing each subject-matter field; (6) in no conceivable way can any practical reduction in the heterogeneity of classroom groups prevent the teacher from employing any teaching method, modern or traditional.

These generalizations still do not prove that reduced heterogeneity in classroom groups is desirable. However, they do convince the administrator that he should not lightly dismiss existing objective evidence suggesting very real advantages accruing from certain types of reduced heterogeneity; and that he should not ignore the opinions of teachers who have worked with groups in which heterogeneity has been reduced, and who, in general, are overwhelmingly in favor of the procedure. Moreover, these generalizations convince the administrator of the speciousness of the charge that teachers who favor reduced heterogeneity do so because they are emphasizing the routine acquisition

of facts and skills by the processes of rote memory and drill and without adequate attention to the many-sided, integrated educative growth of the pupils. By no logical process can one establish a causal or inevitable sequence between reduction of heterogeneity and unacceptable classroom procedures.

3. Reduction of Heterogeneity of Classroom Groups Is Likely to Be Increasingly Necessary

If a policy of reducing the heterogeneity of classroom groups seems advisable to the secondary-school administrator to-day, it is certain to seem increasingly imperative during the immediately ensuing years. Important trends in secondary education are producing each year an increasing heterogeneity of the secondary-school population. Passing notice may be taken of three of these trends. First, since 1890 the proportion of pupils of high-school age enrolled in the high schools has tended to double during each decade. If this rate of increase continues, universal enrollment will have been achieved by 1940. Second, promotion plans are tending to make of each grade a group more and more homogeneous from the standpoint of chronological age. Hence, the pupils composing each grade will represent all ranges of all types of abilities, all diversities of interests, aims, and needs, and all levels of growth or achievement possible for pupils of a given age. Third, at the junior- and senior-high-school levels, general or integrated courses are replacing highly specialized and strictly vocational courses. Specific preparation for occupational efficiency tends to be regarded more and more as the function of business and industry in some instances, of the junior college in other instances, and of the university in still other instances. An increase in the number of general or integrated courses is in effect an increase in the constants and a decrease in the variables included in the program of studies. Therefore, in the future the administrator cannot count upon differentiated curricula and an extremely wide range of electives, so much as he has in the past to reduce the heterogeneity of classroom groups.

The upshot of the whole matter is that the heterogeneity of each grade group has reached, or is about to reach, its absolute limit, and the most important automatic method whereby it has been reduced considerably (differentiated curricula) is on the wane.

Under the circumstances now prevailing and likely to prevail in the secondary school, no administrator need apologize to anyone for believing that classroom groups formed by chance will be so completely

heterogeneous as to present unnecessary handicaps, if not insurmountable obstacles, to directed group learning and to group instruction. All facts considered, few administrators are likely to doubt the wisdom of an administrative policy to reduce this heterogeneity. They will assign pupils to each classroom group with as much consideration as possible to the rate and level at which the pupils will acquire the primary learning products which it seems the proper function of the activities within that classroom group to give them an opportunity to develop.

4. A Consideration of Ways and Means

If this decision is reached it will then devolve upon the administrator to consider ways and means. For many reasons it would be superfluous to reproduce in this section a detailed statement of ways and means of securing reduced heterogeneity. In Chapter VI Turney has discussed in detail the psychological bases most significant for administrative reduction of heterogeneity, and has suggested procedures for securing reduced heterogeneity. In Chapter XIII Connor has described in detail the procedures of several selected schools committed to a policy of reducing the heterogeneity of classroom groups. In Chapter VIII Baker has set forth the basic principles underlying the differentiation of classroom activities for groups of different types, and has given valuable illustrations of such differentiations as are now under way in outstanding schools. In a readily available publication the writer has described the salient aspects of grouping procedures employed in 289 outstanding schools.¹ The reader is referred to the foregoing sources, and to other sources to be suggested later, for details that the writer has thought best to omit from the ensuing discussion.

5. Selection of a Grouping Criterion

a. Mental Ability versus Other Factors as a Criterion. The first problem confronting the administrator who has decided upon a policy of reduced heterogeneity of classroom groups is the selection of a grouping criterion. The criterion in use in most schools is a composite one, basic to which is some measure of general mental ability. In some types of classroom work the criterion of general mental ability is made the sole basis of reduced heterogeneity.

¹ Roy O. Billett. *Provisions for Individual Differences, Marking, and Promotion* (Bulletin No. 17, 1932, Monograph No. 13, National Survey of Secondary Education, United States Office of Education, Washington, D. C.), pp. 16-194.

Extended arguments for or against any basis of grouping are out of place in this chapter. I have expressed my views elsewhere.¹ However, it is obvious that the criterion of general mental ability should have an important place in a plan to reduce heterogeneity for certain types of classroom activities. Yet it has little or no value as a criterion for reduced heterogeneity in certain other types of classroom activities. To take an extreme case, it has no conceivable application in the assignment of pupils to the "resting classes" maintained in place of the regular gymnasium classes for underweight pupils in the Centennial High School of Pueblo, Colorado; yet these are classes where at least one type of heterogeneity has been reduced materially. Neither is its value obvious as a major criterion for assigning pupils to classes in most phases of physical education, music, art, or practical arts. In assigning pupils to classes in the fields just named, the measure of general mental ability should be supplemented or replaced by measures of the special abilities involved. These measures may be derived from records of past achievement, from standardized prognostic tests, or from locally built, informal objective tests. This last-named criterion is being employed in only a few schools (Table II, Item 8), but it merits and no doubt will receive increasing attention and use.

Far from being undesirable, variation of the grouping criterion for different types of classroom activity, as secondary schools are now constituted, has important outcomes from the standpoint of socialization of the pupil. Such variation of the grouping criterion means that a given pupil will not find himself segregated with the same associates for all curricular activities; on the contrary, his associates for the entire school day collectively will tend to approximate a cross-section of the school.

However, it should be observed parenthetically that if the units of classroom activity in secondary schools should continue to become more 'integrated'; that is, to cut more and more across 'subject' lines, it would appear that some measure of general mental ability would become more universally applicable as a criterion for reducing the heterogeneity of classroom groups.

b. The Class Personnel Chart as an Aid in Forming Groups. An interesting example of the use of mental ability as a criterion is illus-

¹ Roy O. Billett. *The Administration and Supervision of Homogeneous Grouping* (Columbus, Ohio: Ohio State University Press, Contributions in School Administration No. 4, 1932); also "The grouping idea." *School Life*, 18: November, 1932, No. 3, pp. 43-44, 56-57.

trated by the "Providence Class Personnel Chart" reproduced in Figure 1. This chart is accompanied by the following explanation of its uses:

The principal purposes of the Class Personnel Chart are as follows:

1. To show graphically the chronological age, mental age, and intelligence quotient of every pupil in the class.
2. To indicate a reasonable achievement goal for each pupil.
3. To indicate a guidance or adjustment program for each individual.
4. To show whether the class is well graded.
5. To aid in classification when there are two or more groups of pupils in the same grade.

The numbered horizontal lines represent the mental ages, and the numbered vertical lines, the chronological ages. The numbered oblique lines, curving into horizontal lines, locate the intelligence quotients. A letter rating may be substituted for the intelligence quotient as is indicated. The straight oblique lines, marked with Roman numerals and letters, indicate the achievement levels or goals for the various grades. The numerals indicate the grades; the letters the achievement or mastery goals. The + and - exponents of the letters show the number of educational years achieved above or below the standard or normal educational age of the grade.

The guidance program at the extreme right applies to grade 7 only and is in accordance with the mental ages. The guidance program at the bottom applies to grade 7 only and is in accordance with the chronological ages. In this particular grade possibilities for differentiation must be considered in planning individual programs.

When the class is to be charted the names of the pupils should be written alphabetically and numbered as indicated on the Test Record Sheet. With the intelligence quotient or letter rating and chronological age given, locate the point representing the pupil's chronological age at the bottom of the chart and move vertically upward until the point indicated by the intelligence quotient or letter rating is reached. At this point place a dot and the pupil's serial number. His mental age can then be read between the proper horizontals.

To indicate the median mental age of the class, draw a red line parallel to mental age horizontals so that half the pupils will fall above and half below it. To indicate the median chronological age, draw a red line parallel to the chronological-age verticals so that half the pupils will fall to the right and half to the left of it. The median intelligence quotient can be shown by a red line parallel to the intelligence-quotient lines, half of the pupils falling on each side of it.

chronological age is 12 years, and the normal mental age is 12 years; for 7A the age is 12½ years, and so on.

If pupils are properly graded they will be located near the Achievement Diagonal of their grade. If pupils are located far from the diagonal, this fact shows that they have not been accelerated or retarded in proportion to their ability and should receive the attention indicated by the guidance programs both at the right and at the bottom of the chart.

After this is done, classifications may be made in schools where there are two or more classes of the same grade. Pupils should be grouped together in a class so that there will not be too great a range of differences in chronological age, mental age and intelligence quotient.

The actual achievement average of each pupil, as shown by standardized educational tests, should then be compared with the achievement goal which is indicated by the letter rating on the Achievement Diagonal. A disagreement of more than one point should be carefully investigated. Those who exceed their goals should be given another psychological test. Those who fall below their goals should be given remedial instruction in order to raise their achievement average.¹

The reader will find it interesting to compare this chart with the one presented by Turney in Chapter VI.

c. *The Cumulative Record as an Aid in Forming Groups.* Effective reduction of heterogeneity in the many types of classroom groups of the modern secondary school commonly calls for a large amount of data on each pupil. However, these data are already at hand in any school maintaining an adequate guidance program. In such a program the important factors influencing the pupil's rate, level, and capacity for development in various types of school activity are the object of continuous study and record. The writer has listed these factors in detail elsewhere.² The administrator should devise some kind of classification card to carry the data that he deems significant for classification purposes. I have described several such devices in use in secondary schools, elsewhere.³ In addition, two such cards submitted from schools contributing data to this chapter are reproduced here (Figures 2 and 3). Inspection of these cards will show that in the Trenton

¹ For a complete discussion of the use of the Providence Class Personnel Charts, see Richard D. Allen, *Organization and Supervision of Guidance in Public Education* (Inor Publishing Company, 1934), pp. 375-414.

² Roy O. Billett. *Op. cit.*, pp. 405-412.

³ *Op. cit.*, pp. 153, 157, 158, and 161.

Form EP14-7-33-10M		TRENTON PUBLIC SCHOOLS		SECONDARY DIVISION		Date _____			
10th, 11th and 12th GRADE CLASSIFICATION CARD									
NAME _____		Last Name		First Name		Sex _____ R. A. I. _____			
PRESENT H. R. _____		Curriculum _____		New H. R. _____					
SUBJECT	Present Course No.	L. 2 or 3	RATING		Course Numbers Chosen	Course Numbers Assigned	Period Number	Room Number	Recitation Teacher's Signature
			May	June					
							1		
							2		
							3		
							4		
							5		
							6		
Parent's Signature _____					Pupil's Objective _____			Group No. _____	
Address _____					Phone No. _____			Adviser _____	

FIGURE 2. — CLASSIFICATION CARD USED IN TRENTON SENIOR HIGH SCHOOL

Senior High School much importance is attached to the R.A.I. (reading-ability index), a measure derived from scores made on certain standardized tests in English. In Cleveland the P.L.R. (probable

E 29-20M-7-31 J 29-Stock No. 552		Classification Record Cleveland Public Schools	
Name _____		Last name	
Sex _____		Promoted to _____ Grade _____	
Address _____		Raw Score _____	
Date of Birth _____		P. L. R. _____	
Month _____ Day _____ Year _____		Av. Scholarship _____	
Elementary School _____		Failed in _____	
Junior High School _____		Section Recommended _____ (X, Y, Z)	
Senior High School _____		Date of Test _____	
Name of Test _____		Form _____	
DATE		REMARKS	
Placed in section _____			
Changed in section _____			
Changed in section _____			
Changed in section _____			

FIGURE 3. — CLASSIFICATION CARD USED IN CLEVELAND PUBLIC SCHOOLS

learning rate) and 'average scholarship' are emphasized. The probable learning rate is comparable to an index of brightness or intelligence quotient and is derived from a group mental test. Neither of these cards carries as many data as the classification cards referred to by the writer.¹

In constructing and using his own classification card, the administrator will do well to remember that seemingly different types of data, when used as criteria for grouping, really tend toward the same kind of reduction in heterogeneity; for example, it has been demonstrated that the R.A.I. and the P.L.R. are highly correlated and hence do not produce fundamentally different results. It is of no small administrative significance that there are many ways of achieving a similar end — one way being most acceptable in one situation, another way most acceptable in another situation.

6. Relation of Classification to Class Size

Thirty-six of the 54 schools supplying partial data for this chapter have established definite standards as to the desirable numbers of pupils to be assigned to classroom groups consisting of pupils below average, average, and above average, respectively, in ability to succeed with the work of the class. These standards range, in schools that include senior-high-school grades, from 15 to 31 for below-average groups; from 25 to 35 for average groups; and from 26 to 38 for above-average groups. The means are 24, 30, and 32, respectively. For schools that include the junior-high-school grades the comparable data are: ranges, 17 to 40; 25 to 45; and 30 to 42; means 25, 34, and 37. No conclusive evidence can be cited to prove any standard better than any other. The consensus found among theorists in education supports the consensus indicated by the standards just described; namely, that, other things being equal, the slower the group, the smaller the class-section should be. It should be borne in mind, however, that the standards cited do not represent practice in these schools, but ideals; in fact, thirty-three of the schools that furnished the standards find undesirable deviation necessary in practice (Table II, Item 2). Almost without exception, these deviations are due to 'retrenchment' during the depression and consequent shortage of teachers, and to classroom dimensions that are poorly adapted to a scheme of variation in class size without sacrificing needed seating space.

¹ See the preceding reference.

7. Relation of Classification to the Construction of the Daily Time Schedule

It must be assumed here that the reader is familiar with the detailed techniques involved in the making of a daily schedule of classes.¹ In what way does a policy of reduced heterogeneity in classroom groups complicate the problem of making the daily time schedule? Briefly, it complicates the problem in exactly the same way that several elective courses complicate it when they replace one course that has been required of all pupils. The point may be illustrated from the data of Table I. When the administrator attempted no reduction of heterogeneity, any pupil could be assigned to any one of seven different class sections. If heterogeneity in any respect is to be reduced to approximately one-half that of the total grade, then each pupil may be assigned to one of only three or four different class sections. If heterogeneity is to be reduced in any respect to approximately one-third, then each pupil may be assigned to one of only two or three different sections. If heterogeneity is to be reduced in any respect to approximately one-seventh, then each pupil can be assigned to but one section. The greater the reduction of heterogeneity attempted, the less flexible the individual pupil's daily schedule becomes, and the greater the difficulty, in all but very large schools, of providing a non-conflicting daily schedule of classes for pupils and teachers.

Hence it is obvious that in all but the largest schools the problem of desired reduction in heterogeneity must be solved in terms of the amount of reduction actually feasible. This does not mean that the problem has only theoretical significance. Half a loaf is better than no bread—here as well as elsewhere. As a matter of fact, 'half a loaf' is about what is being attained at the present time. In 289 secondary schools studied in the National Survey of Secondary Education because of the emphasis they were placing on some form of reduced heterogeneity within the classroom groups, it was found that slightly less than half the total classroom offerings were presented to classes in which the heterogeneity had been reduced by administrative means.²

¹ For those not informed the following are excellent presentations of the techniques involved:

Harold L. Harrington. *Program Making for Junior High Schools* (New York: Macmillan Company, 1930).

Roswell C. Puckett. *Making a High School Schedule of Recitations* (New York: Longmans, Green and Co., 1931).

² Roy O. Billett. *Op. cit.*, pp. 61-62.

Moreover, of the 54 secondary schools studied for this Yearbook, fewer than half are reducing the heterogeneity of pupils in all classroom groups (Table II, Item 9). Finally, the practicability of reduced heterogeneity is seen in its proper perspective if one remembers that, although the typical secondary school is pitifully small, nevertheless more than half the secondary-school pupils in the United States attend schools each of which enrolls well over 650 pupils.

8. Grouping within the Class Section

At this point it seems natural to inquire whether the principle of reduced heterogeneity can be employed in the thousands of small secondary schools enrolling fewer than one hundred pupils each. These small schools typically include Grades IX to XII, and therefore have an average grade enrollment of 25 pupils or less. Even in required subjects there are not enough pupils to form two class sections.¹ Unless grouping takes place within the class section, the principle of reduced heterogeneity has no application in such a school. Some secondary schools, not all of them small, by the way, are experimenting with a flexible type of grouping within the class section. The procedure is unstandardized and informal, and functions best in classrooms equipped in the modern fashion with movable tables and chairs, with adequate classroom equipment, library facilities, and filing equipment. Some form of the differentiated unit assignment enables the teacher to exercise guidance and direction over the different groups, the members of which are active at one time as individuals, at other times as members of the entire class. The administrative function seems discharged if the administrator has provided the teacher with the right kind of classroom-laboratory and has rendered readily accessible to the teacher significant data for initial grouping.

9. Informing Pupils and Parents concerning Grouping Procedures

A sane policy of reduced heterogeneity for classroom groups, sanely interpreted to pupils and parents, meets with general approval. On the other hand, the mistakes made in certain school systems prove that 'publicity,' in the sense of 'sensationalism,' should be avoided. Pupils or citizens informed enough to ask intelligent questions about the grouping procedures should receive accurate answers in a vocabulary

¹ For a complete discussion of class size in small high schools, see F. T. Spaulding, *The Small Junior High School* (Harvard Studies in Education, Harvard University Press, Cambridge, Mass.), Volume IX, 1927.

that they understand. Local circumstances must determine whether and when to include the topic in the current program of interpreting the schools to the public.

10. Marking, Promotion, and Awarding of Diplomas

Of the 54 schools contributing data to this chapter, considerably fewer than half are differentiating the marking system in any way for different types of classroom groups, and fewer than a third are using a systematic plan of trial promotion (Table II, Items 4 and 5). Whether no marks at all should be used; or if marks are used, whether they should be differentiated for different types of groups are questions too involved for discussion here. The writer favors a series of marks for each significant aspect of pupil growth and would have each mark, as far as possible, always represent a definite extent and degree of pupil accomplishment. No practices in marking and promotion were reported to our committee that were not included in the report of the National Survey of Secondary Education. Accordingly, the reader interested in considering what should be done in his school in the fields of marking and promotion is referred to the Survey report,¹ which is far more comprehensive than any statement that could be made here.

Only one effort in marking, promotion, and awarding of diplomas not elsewhere reported was discovered in this study. This effort is concerned with the development of an individualized diploma. Three of the 54 schools contributing data to this section are experimenting, or planning to experiment, with an individual diploma to be awarded pupils on completion of the twelfth grade (Table II, Item 6). Information from the John Adams High School, Cleveland, Ohio (see Chapter XIII), indicates that the graduate from that school will receive something more definite than the usual generalized testimony that he has "completed the course of study prescribed by the board of education and is therefore entitled to this diploma." The diploma will carry a statement of the subject-matter fields in which the pupil has studied, the number of semesters he has devoted to each field, and an estimate of his achievement in the field. Space is provided for special recommendation for excellence.

This seems to be a move toward a diploma that will indicate in sufficient detail what business, industry, higher institutions of learning,

¹ Roy O. Billett. *Provisions for Individual Differences, Marking, and Promotion* (Bulletin No. 17, 1932, Monograph No. 13, National Survey of Secondary Education, United States Office of Education, Washington, D. C.), pp. 424-472.

CHAPTER XIII

ABILITY GROUPING IN CERTAIN SELECTED SCHOOLS

WILLIAM L. CONNOR, Chief
and
GERTRUDE C. HAWKINS, Research Assistant
Bureau of Educational Research, Cleveland, Ohio

I. INTRODUCTORY STATEMENT

Billett presented a clear picture of ability grouping in the high schools of the United States in 1932.¹ The pictures presented in this chapter supplement or add to his story and bring it down to date, particularly from the standpoint of the elementary school.

The summary immediately following of some of the salient features appearing in these pictures is not intended to be more than a summary of this material. It is in no sense a series of generalizations applicable to the country as a whole — this in spite of the fact that some effort has been made to secure reports from typical schools. Neither is there any attempt to estimate critically the value of any procedure described. That has been done in other chapters of this Yearbook.

II. SUMMARY OF SALIENT FEATURES

1. Reasons for the Introduction of Grouping

In the pictures presented here of ability grouping as it operates in certain schools, three reasons appear for its introduction, namely: (1) the growing diversity of interests, abilities, and needs of children, as revealed both by the daily experiences of classroom teachers and by the use of standard tests; (2) the necessity of providing for the development of the child from the standpoint of social adjustment, personality, and character; and (3) the desire, or necessity, for 'keeping step' in a school system in which most of the schools had already undertaken ability grouping for the reasons first stated. One elementary school (Philadelphia) clearly states that ability grouping in that school is an

¹ Roy O. Billett. *Provisions for Individual Differences, Marking and Promotion* (Bulletin No. 17, 1932, Monograph 13, United States Department of the Interior, Office of Education), Chapter 6.

experiment looking toward the discovery of means for the further individualization of instruction.

2. The Bases for Grouping

One junior high school (Detroit) reports the use of a composite numerical index of ability, other than the I.Q. or P.L.R. One senior high school (Cleveland) reports informal experimentation with such an index. One elementary school and one senior high school (Cleveland) report ability grouping within the grade on a double basis; first, on the basis of I.Q.'s or P.L.R.'s, and second, within the mental ability groups thus formed, a further division into teaching groups on the basis of levels of achievement. This is done apparently to take account of two of the important factors in academic learning, (1) the rate at which learning takes place, and (2) the level of achievement at any given time. The plan also attempts to recognize both 'specificity' of ability and general ability. Most of the schools report the use of the I.Q. or P.L.R. as the initial basis of ability groups, but all shift pupils from one group to another from the standpoint of other data. Some of the secondary schools (Philadelphia) change the basis of special-subject grouping entirely from the mental test record to the achievement marks as soon as the latter become available in the new school. Two or three times in these reports, there appears to be some recognition of the advantages of moving a child to a higher ability group on evidence of better achievement; and negatively, some recognition of the danger of moving a child to a lower ability group whenever he fails for a time to live up to his ability.

In a number of schools it is to be noted that certain pupils are sometimes reclassified temporarily with children of much higher or lower ability. This temporary classification is made in the hope that the association of these children with groups of different ability will influence favorably the development of their personalities, and in spite of the principle, held to be generally true, that honesty, strength of character, and social adaptability develop best in a child under the 'load' that builds up as he works and plays with other children of approximately his own ability.¹ Fundamentally, the basis of the character

¹ For studies bearing on this point see J. B. Maller, *Coöperation and Competition*, Teachers College Contribution to Education, No. 384, p. 161; W. L. Connor, "Relation between teachers' marks and pupils' behavior," *Nation's Schools*, November, 1920, pp. 56ff.; and W. L. Connor, "Classification of pupils," *American Educational Research Association*, February, 1932.

education experiment now in progress at Washington, D. C., is just this, that sound character and adaptability to social situations develop most rapidly when the school load is adjusted to the interest and ability of pupils.

3. Difficulties in Ability Grouping

Many of the reports emphasize that, owing to the financial stringency, one of the most serious difficulties involved in ability grouping is the necessity for classes so large that the range of ability within any one group is still much too wide. All junior and senior high schools have difficulty with grouping in advanced classes in elective subjects.

There is a suggestion in one or more of these reports that an initial, and, sometimes, a continuing difficulty of classification is the unpreparedness of the teachers for the change. It may not be out of the way to suggest that none of us, whether layman or professional educator, has examined frequently or thoroughly enough our definition of the objectives of democracy in a dynamic society, and the possible means at hand for attaining them.

4. Adjustments in the Curriculum

The curriculum may be adjusted to meet the needs of pupils of different abilities either by varying the amount and difficulty of the work required of them, or, in the case of the secondary schools, by changing the subjects to ones better adapted to the present interests and future needs of the children. In the case of junior and senior high schools, the Committee has found little in printed form available for distribution to its members showing adjustment of curricular materials to ability groups, other than the material reported by Billett in "Provision for Individual Differences, Marking, and Promotion," Bulletin No. 17, Monograph 13, United States Department of the Interior, Office of Education, Chapter 6. An exception to this statement would be "Course of Study in English, Grades 7-12," (1932) and "Units of Work and Standards of Attainment—Supplement to Course of Study in English," (1934) Baltimore, and the description of the curricular changes in certain high schools in Washington, D. C., made to further the development of character. However, in the scheme of testing and marking in use in Patrick Henry Junior High School (Cleveland) a great number of unit tests have been developed that are a vital supplement to the differentiated courses of study, if not an actual part of them. There are also experimental classes for pupils of low ability

in a number of senior high schools in Cleveland, and it is planned to extend the experiment.

There are available in printed form in Cleveland three elementary courses that show three-track differentiation; namely, courses in English, arithmetic, and geography. However, actual practice in Cleveland is more nearly represented by mimeographed material supplementary to these courses.

The publication of new material adjusted to the needs of children of different abilities is everywhere much overdue, and may be expected as the financial limitations of these times are removed.

5. Results of Ability Grouping

In this chapter a special effort has been made to avoid discussing the results of classification. However, it is impossible that one should present a series of pictures of the operation of a number of schools or school systems using any plan of ability grouping without at least implying that the outcomes are favorable or unfavorable to the ends sought. A comprehensive study of results appears in Chapters XIV and XV.

III. DATA FROM SELECTED SCHOOLS

1. Marxhausen Elementary School — Detroit¹

Realization of the large differences between children in the same grade is one outstanding contribution of educational research. A variety of procedures has been proposed for making school groups more homogeneous for purposes of instruction. Miss Kepperling describes one such plan — the 'vertical' grouping of pupils of similar capacity. Most schools are not large enough to have each class homogeneous, both in grade and in ability level. In such cases the usual plan is to put together pupils of the same grade but of different ability levels. Miss Kepperling has put together pupils of different grades, when necessary, but not of different ability groups.

Recognizing the fact that, in spite of great individual differences, pupils are taught in groups, some seven years ago, the pupils in the Detroit public schools were grouped under the X-Y-Z plan of classification. The X group included the upper twenty percent in ability, the Y group the middle sixty

¹ From a paper given by Inez Kepperling, Principal, Marxhausen Elementary School, Detroit, at the Ninth Annual Educational Conference held in Detroit in May, 1927.

percent, or those of average ability, and the Z group the lower twenty percent. This classification was for the purpose of making provision for the education of those pupils who had much more or much less than the average ability.

For some time there has been a growing need for some sort of reorganization of the X-Y-Z classification. In February, 1926, at the suggestion of Dr. Harry J. Baker, Clinical Psychologist in the Detroit public schools, a study was begun of the assignment of teachers who were best adapted to the different types of teaching needed for bright, average, and dull pupils.

Since our school was of the platoon type, the following general steps in procedure, as suggested by Dr. Baker, were taken:

1. We listed the number of pupils in each half-grade by X-Y-Z groups, found the total number of X's, Y's, and Z's, in all grades for use in assigning pupils to teachers, and assigned unclassified pupils to the groups that most nearly seemed to fit their ability until such time as they could be examined.

2. We assigned to the homeroom or academic teacher one-half of her number of pupils, the first platoon, from the Y group. Generally, in a platoon school one section may be composed entirely of the Y group, or a teacher may have one-half of each section of the Y group.

3. For the other half, or second platoon, of her group, we assigned to the homeroom or academic teacher pupils from the Z group or pupils from the X group, but not from both groups.

4. All teachers, therefore, fell into two groups: teachers of the Y and X pupils, and teachers of the Y and Z pupils. From the total number of pupils in X groups, Y groups, and Z groups under Step 1, the number of teachers needed for the X groups and the number for the Z groups were determined.

5. After conferences with teachers, those who preferred Y-X work and those who preferred Y-Z work were assigned to the groups of their choice. After the various group assignments have been decided upon, the teachers are moved from type to type only when it is found absolutely necessary to do so.

The steps in the plan were carefully followed and the school was reorganized accordingly, with but one exception. This was in the sixth grade. Here one teacher was assigned all the 6A pupils, X, Y, and Z, while another teacher was assigned all the 6B pupils, X, Y, and Z. However, each of these teachers grouped her pupils so that she had an X-Y teaching group, and a Y-Z teaching group within the larger group.

Tables I, II, and Figure 1 show the steps in the reorganization.

Table I gives the enrollment by grade in X, Y, and Z groups before reorganization.

Table II shows the shifts of pupils that were made to balance class size. The arrows indicate the direction of shifts. For example, in the 1A-Z grade, four of the better Z pupils were shifted to the Y group. A total of 43 pupils of the Z groups were shifted to Y groups, 15 pupils were shifted from Y to X groups, 12 were shifted from X to Y groups, 4 of whom were also given an extra promotion. Altogether twenty pupils were given an extra promotion. In the case of all shifts, the mental, educational, and age statuses were taken into account. It will be noted that the plan of grouping provided flexibility in making adjustments for individual pupils.

TABLE I.—MEMBERSHIP BEFORE REORGANIZATION

Grade	Group			Total
	Z	Y	X	
1B	36	68	18	122
1A	33	70	10	113
2B	46	21	25	92
2A	40	48	15	103
3B	24	37	17	78
3A	37	30	8	75
4B	23	16	4	43
4A	35	47	45	127
5B	14	25		39
5A	29	40	49	118
6B	13	35	26	74
6A	9	51	16	76
Total	339	488	233	1060

TABLE II.—SHIFTS OF PUPILS TO BALANCE CLASS SIZE

Grade	Group			Total
	Z	Y	X	
1B	36	68	18	122
1A	29 (4→)	64 (10→)	20	113
2B	43 (3)	21	25	89
2A	43 ↓	43 (5→)	20	106
3B	20 (4→)	41	17	78
3A	22 (15→)	53 (←8)		75
4B	20 (3→)	19	(↖ ⁴)	39
4A	18 (17→)	68	(↖ ⁴) 45	131
5B	14	25		39
5A	29	40	(9) ↓ 40	109
6B	13	35	(4) ↓ 31	79
6A	9	51	↓ 20	80
Total	296	528	236	1060

The way in which these groups were organized into classes is shown in Figure 1. Classes were assigned to teachers in the manner previously described.

The teachers accepted this plan with enthusiasm and after a five months' trial decided to continue it.

There were several interesting facts brought out during the first semester. We found that more pupils of the same mental age were grouped together, more pupils of the same degree of brightness together, and more pupils of approximately the same educational achievement together. The range of mentality was greater between X and Z pupils of the same class than between pupils in half-grades five months apart, provided that they were grouped according to their mental ability. For example, the range of mentality be-

Class	1B			1A			2B			2A			3B			3A			4B			4A			5B			5A			6B			6A			Enrol- ment
	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z	Y	X				
A																																		48			
B																																		47			
1																																		44			
2																																		46			
3																																		44			
4																																		45			
5																																		43			
6																																		39			
7																																		43			
8																																		47			
9																																		40			
10																																		37			
11																																		41			
12																																		36			
13																																		35			
14																																		45			
15																																		38			
16																																		40			
17																																		37			
18																																		47			
19																																		46			
20																																		40			
21																																		39			
22																																		40			
23																																		40			
24																																		40			
	36	68	18	29	64	20	43	21	25	45	43	20	20	41	17	22	23	20	19	18	68	45	14	25	29	40	40	13	35	31	9	31	20	1060			
	122			113			89			106			78			75			39		21		39		109		79		80			1060					

FIGURE 1. ORGANIZATION OF CLASSES IN THE MARXHAUSEN ELEMENTARY SCHOOL, DETROIT

tween the 5B-X's and the 5B-Z's is greater than between the 5B-X's and the 5A-X's.

We found that, under this plan, we could advance pupils with their own age group more effectively, many groups being promoted as whole groups to the next half-year.

We found the new plan of organization much to the advantage of the pupil. Those of more than average ability were able to complete more than the required amount of work, while those of lower mentality had more consideration given them in the way of review work, less complicated situations, and more specific questions and facts.

In addition, the teacher herself had fewer groups to instruct, and, because she was no longer required to cover the entire range of mental differences, she felt that her work was lighter and more efficient.

2. Paul Revere Elementary School — Cleveland¹

The elementary school set apart in Cleveland to devise methods applicable to the development of character and citizenship uses a careful plan of classification characterized by class groups based primarily on probable learning rate (P.L.R.), and small teaching groups within the class group based upon achievement. However, emphasis is placed upon the importance of shifting pupils about at times so as to bring them into close working contact with pupils of different ability.

Paul Revere School was organized at the instance of H. M. Buckley, Assistant Superintendent, for the express purpose of learning how best to develop health, physical growth, safety, thrift, character, and citizenship. Pupil development is made the prime factor in school organization at this building. Since the building is located in a very cosmopolitan residential area, with wide and rather obvious differences in ability, from the beginning careful grading and classification have been deemed essential features of the work. Ability levels are established tentatively by means of standard tests of achievement and group intelligence tests. Placement in a teaching group, however, is, in the final analysis, based upon the judgment of teachers and supervisory officers.

Pupils from 85 to 125 P.L.R., or group-test I.Q., in Paul Revere School are grouped into the usual grade groups on the basis of the judgment of teachers as to their achievement. However, the results of standard tests of achievement are taken into consideration in forming this judgment. Pupils below 85 P.L.R., and some higher, who are failing in the regular classes, are placed in ungraded Z groups, where they may make progress, each at his own rate. The policy of semiannual promotion in effect in the Cleveland public schools is followed in the X and Y sections at Paul Revere. Less than one percent of the pupils of this school fail of promotion. This is probably due to the transfer to the ungraded group of many pupils who might otherwise fail of promotion.

The pupils in each grade at Paul Revere, as in most Cleveland schools, are classified first into classroom groups according to probable learning rate, or group-mental-test I.Q. Pupils whose P.L.R.'s register above 125 or below 70 are recommended to the psychological clinic for individual Binet examinations. When the I.Q., which in Cleveland is restricted to the individual Binet examination, is 125 or above, pupils are assigned to what are called 'Major Work' classes. When the I.Q. is 69 or below, pupils are assigned to classes for mental defectives. The large school population that is between these two extremes is divided into X, Y, and ungraded Z groups, as follows: X group, 105-124 P.L.R.; Y group, 85-104 P.L.R.; and ungraded Z group, 70-84 P.L.R.

The pupils in each grade in Paul Revere School are classified first according to the classification procedure just described. The regular city-wide tests are

¹ Prepared jointly by the authors of this chapter and Miss Katherine A. McCarty, Principal of Paul Revere School, Cleveland.

used as the basis of the classification program, but extra tests are administered to individuals and to groups wherever there seems to be a need. The Cleveland Kindergarten Classification Test is used to test entering kindergarten pupils. The Cleveland First Grade Classification Test is used in Grade 1B, and the Pintner-Cunningham Primary Mental Test is used in Grade 1A, whenever necessary. The Detroit Primary Intelligence Test is used in the second grade. The National Intelligence Tests, Haggerty Intelligence Examination, and the Henmon-Nelson Test of Mental Ability are used from the 3A grade through the 6B grade, as required. The Cleveland Classification or the Otis Self-Administering Test of Mental Ability is administered in the 6A grade, preliminary to entering junior high school.

The first basis, therefore, of classification within the grade group is the P.L.R., or group-test I.Q. After groups or grades have been formed on the basis of P.L.R., or I.Q., an inventory of the educational achievement of pupils within these groups is made on the basis of reading and arithmetic tests, and sometimes other subject tests. Here the New Stanford Achievement Test and the Metropolitan Achievement Tests are used. On the results of these tests, expressed as grade-age, teaching groups are formed by subject. For example, in the present 6A grade at Paul Revere School there are seven reading groups, ranging in ability from 5A through 7A grade level. Similar groups are formed in arithmetic, and, irregularly, in other subjects. Materials of two kinds are planned for these teaching groups—skill material, both basic and remedial, and interest and cultural material. The check of achievement by grade-age in each subject is made in terms of mental age. Teachers are asked to hold each pupil to an achievement corresponding more or less closely to his own ability.

Other criteria entering into the classification program at Paul Revere School are levels of character and of personality as rated by teachers and pupils. This part of the program is largely in the hands of the pupils themselves. The Citizens' League is the organization of pupils responsible for activities on the playground, conduct in the school halls and washrooms, the appearance of the building, the library program, and for other activities of pupils. Pupils choose their own leaders under the restrictions, taught and really learned, that leaders must qualify in scholarship, character, personality, and service to their fellows and to the school. Pupils are frequently moved from one group to another, for a time, to give them a better opportunity to develop leadership or coöperation with others, as the need may be.

The classroom groups at this building number about 42 pupils each. The teaching groups vary from 6 to 20 pupils, but 10 is about the average number. The special classes, such as 'Major Work' and classes for mental defectives, number not more than 30 pupils, and include a range of several grades. Of the two 'Major Work' classes, one class includes Grades II through IV; the other, Grades V and VI. The class for mental defectives has a spread from Grade I through Grade III.

At the present time the chief difficulties in such a program as that carried on at Paul Revere School are large classes and lack of equipment and supplies due to curtailed expenditures, which are, in turn, due to general economic conditions. Very large classes are necessary. Special gymnasium and playground activities have had to be curtailed. The music and art programs

have also been affected. The 'Major Work' classes have not suffered from the economic depression as have the regular classes because special supplies and equipment are provided by a private donor.

The initial classification of pupils is not allowed to become a static thing. The principal, supervisory assistant, and teachers are constantly studying the development of every child enrolled. Whenever there is any indication that a child has been misplaced because of the results of previous tests, his case is considered from every angle; *i.e.*, scholarship, health, home environment, and the reactions of teachers and fellow-pupils. New tests are given and every effort is made to place the pupil in the group best suited to his ability.

This careful individual study is made of pupils in ungraded Z groups and groups for mental defectives, as well as of pupils in normal classes. Sometimes children have drifted into ungraded Z groups because of personality traits that prevented a complete exploration at the time of the initial group test or even the individual Binet examination; and, as the child gains confidence in his surroundings and his associates, he becomes able to give expression to his true ability. Retesting frequently reveals that such pupils fit into a Y, or even an X, section better than they do in the lower group.

Paul Revere School, like other Cleveland public schools, is following the idea of curriculums differentiated for various ability groups. However, being an experimental school, there is considerable leeway in the selection of curricular material in each group according to need. The principal feels that this is justified in her school, and that it might be possible to provide by this means for all of the differentiation needed. However, the demands of such a plan on the teacher would be more severe than they now are, or perhaps ever have been. In practically every subject provision is made for X, Y, and ungraded Z sections. While the actual achievement of scholastic skills varies according to the abilities of pupils, the character and amount of the information given is not decreased for the ungraded sections. This is possible because two ideas of teaching are gaining a new emphasis in Cleveland. They are: (1) the method of telling by the teacher, and (2) the method of giving the pupil a much fuller experience in manipulating the materials of the arts and sciences in an educative way.

3. John M. Patterson Elementary School — Philadelphia ¹

A number of elementary schools in Philadelphia are experimenting with the classification of pupils so as to make individual instruction somewhat easier. Mental tests are used as the primary basis of grouping and later achievement and a number of other factors, including health and social background, are given more than usual consideration.

Fifteen years ago, the Superintendent of the Schools of Philadelphia selected a group of twenty-four principals to study grouping and classification and to experiment with the idea in the schools. This group finally narrowed

¹ From notes submitted by Anna G. Campbell, Principal of John M. Patterson Public School, Philadelphia.

down to five principals, who are now directing five experimental centers for ability grouping to determine how to simplify the process of individualization in teaching and to stimulate every pupil to work to his capacity.¹ John M. Patterson Elementary School is one of the five.

The ability groups are formed on the basis of mental tests, supplemented by the results of educational tests and such additional criteria as chronological age, maturity, length of time in grade, character and health, school history, social history, family history, and attendance and retardation.

The mental tests are administered in the 1A, 4A, and 5A grades, or at the end of the kindergarten, 3B, and 4B grades. The pupils in Grades I-III inclusive are tested by the psychologists of the Division of Special Education; in Grades 4A through 6B the testing is done by the school principal or a teacher especially designated by the principal. The tests used for the pupils in Grades 1A through 3B are the Philadelphia Grade 1A Mental Ability Test, the Kuhlmann-Anderson Intelligence Test, and the Metropolitan Readiness Test. At the beginning of 4A, or the end of Grade 3B, the Philadelphia Mental Ability Test is administered. At the beginning of the 5A term, all pupils are again retested with the Philadelphia Mental Ability Test. The two I.Q. records are averaged as a new basis for grouping. This classification stands through Grade 6B, unless the individual shows signs of faulty placement. A certain part of each school month is set aside as a testing period to secure records for classification or reclassification of the following pupils: (1) those who are new entrants to the school, (2) those the accuracy of whose intelligence-test record is questioned for some reason, and (3) those who have been promoted to a grade group in which a different test is used. Newly admitted pupils are placed on the roll, but are not considered permanently classified until test data are secured. The mental test results are used to determine both the ability group and the achievement expectancy of the group. The achievement expectancy is a figure representing the amount of deviation that may be expected from the grade norms in view of the average I.Q. and the number of overage pupils of the group. For example, for a group with an average I.Q. of 108 and 11 percent of its pupils exceeding the normal age limits, the achievement expectancy would be $+1.0$, meaning that the group would be expected to achieve an average score in the several school subjects one standard score unit above the city average. Educational-test results are used to supplement the mental-test results in determining the proper group. In the absence of mental tests in Grades 1A, 1B, 2A, 2B, 3A, and 3B, the principal is guided in classification by the results of reading tests, which are given at regular intervals.

In making up classes, teachers arrange pupils in the order of teachers' judgments, but in separate columns they list the I.Q., number of terms in grade, and all other factors that might influence the grouping. When the grade group is large enough, it is usually divided into three groups, designated as Group 1, Group 2, and Group 3. The highest group in the grade section in the school is designated as Group 1, which is the group that tests above

¹ P. A. Boyer. "The Philadelphia experiment in homogeneous grouping." *Schoolmen's Week Proceedings* (University of Pennsylvania, 1930), pp. 241-257.

110 I.Q. Group 2 is the second highest, with the I.Q.'s of 90-109. Group 3 is the lowest with I.Q.'s below 90. The number of pupils in each of the groups depends upon the enrollment and the number of teachers employed. The theory, however, is that groups should be arranged in about the following proportions: 40 in Group 1, 45 in Group 2, and 35 in Group 3. Instruction at either end of the scale must be differentiated to suit the abilities deviating from the average.

The pupils in Group 1 are usually young, of average stature, conscientious, attentive, and interested. Their achievement is high, and the median class I.Q. is well above 110. Pupils in Group 2 are not outstanding. The group usually succeeds but must work steadily. The I.Q.'s there vary from 90-109, and the achievement is about that expected of average pupils for age and grade. Pupils in Group 3 are usually overage, retarded, and overgrown. The I.Q. is usually 90 or below. Their progress records often show that they have repeated at least one term in their school careers. Frequently these pupils show decided tendencies to personal maladjustments.

One of the chief difficulties encountered is the number of adjustments of classification and organization throughout the term necessary to keep the groups as homogeneous as possible and at the same time maintain the required enrollment in each class. Furthermore, the admission and dropping of pupils necessitates testing, classification, reclassification, and reorganization throughout the term.

Formerly, the classification of 1A pupils was difficult because individual psychological tests were administered by a psychologist whom the children did not know. This method of testing 1A children also made it impossible to form ability groups in less than six to eight weeks after the opening of the term. Now these pupils are tested by a psychologist assigned to the building.

Efficiency of classification is limited by the enrollment and the number of teachers employed. Pupils are sometimes called Group 1 if they are organized into that group because of numbers, no matter whether their I.Q. or achievement expectancy is that of Group 1 children or not. All, then, that can be said certainly of Group 1 pupils is that they are better than those who are in Group 2, or in Group 3. Group 1 pupils are promoted when they have accomplished the work of the grade satisfactorily, even though their ability would indicate that they should be expected to do much more.

In John M. Patterson School there are no special courses of study for Group 1. The teachers of this group do not advance beyond the limits set up for the grade in each subject, but they do enrich the course by additional cultural work in each subject. Children in Group 1 do extra research and library work, and additional work in dramatics, music, and assembly programs is required. Group 3 is taught the minimal essentials in reading, geography, history, and arithmetic. Adjustments in method have also been made as part of the curricular changes for slow pupils.

While the adjustment class, with its special teacher for group and individual coaching of pupils not up to group and class standards, has little to do with the modification of curriculum and method, it is a most valuable aid in a school in which ability grouping is operating. Most of the pupils who visit the adjustment class for one period (from 30 to 45 minutes daily) come from

Group 3 for instruction in reading. Many pupils who otherwise would not be promoted are able to make their grades in one term because of this coaching; pupils who are absent in Group 2 are often saved for promotion through the teaching they receive in this room; and pupils in Group 1 are sometimes brought up to their expectancy.

Promotion in Group 1 and Group 2 is on the basis of accomplishment of the regular course of study. Promotion in Group 3 is on the basis of accomplishment of minimal essentials for the grade, in terms of the respective ability of each pupil. While pupils in Group 1 are urged to accomplish in proportion to their native ability, if these pupils complete the grade work satisfactorily, they are promoted.

The principal personally supervises and inspects the grades for each report period before marks are registered. This is done to make sure that the practice conforms to the promotion philosophy.

4. E. Morris Cox School — Oakland¹

The need for better adaptation of the materials of the course of study and particularly the need for textbooks adapted to the ability of slow pupils are emphasized by Mr. Kretsinger in his discussion of the problem of administering ability grouping.

Cox School is located in a neighborhood composed of parents of many different nationalities with a wide range of economic, social, and mental standards. The children show a great range in general capacity and in ability to do school work. For these reasons, it was found desirable to group pupils so that classes would be more homogeneous in general mental ability.

There are fewer than one percent of failures each semester. The promotion policy of the school, then, is not a conscious factor in the plan of ability grouping used.

Several tests are used to aid in grouping. During the first week of school all beginning first-grade pupils are given the Pintner-Cunningham Primary Mental Test. This permits a rough grouping of pupils. As soon as possible after this original grouping, the testing committee, consisting of eight teachers who have received certificates for giving individual mental tests, give the Binet test to all doubtful cases. The Kuhlmann-Anderson First-Grade Mental Test is given to all first-grade pupils during the second semester. The Kuhlmann-Anderson Third-Grade Mental Test is given to all beginning third-grade pupils. These retests are used as checks. At any time that the teacher's judgment and the pupil's school work indicate that a child may be misplaced, the Binet test is given and placement reconsidered in the light of the I.Q. found.

Regular classes are composed of pupils with I.Q.'s of 90 or above, as a rule. Z sections, or limited classes, take pupils with I.Q.'s of 70 to 90. The atypical class is composed of pupils with I.Q.'s of 70 or under. However, in all cases the teachers' and principal's judgments are the final criteria for deter-

¹ From a letter written by R. W. Kretsinger, Principal, E. Morris Cox School, Oakland, California.

mining a pupil's placement in any group. There are children with I.Q.'s of 88 or less in regular classes because their success or emotional condition seems to warrant it.

Along with the mental tests all pupils are given the Stanford Reading Tests in Grades III, IV, V, and VI. The Gates Primary Reading Tests are used in the high first and low and high second grades. The results of these achievement tests are used in conjunction with the mental-test results and the teacher's judgment.

There are twelve regular classes, seven Z or limited classes, and one atypical class in this school. There are also remedial reading classes, a speech class, and classes for gifted children in art, dramatics, and music — all of which meet only once or twice each week, except the remedial reading class, which meets every day.

The Z sections have a maximal enrollment of 32 in Cox School with an average of 30. The atypical class averages 17 pupils. Regular classes average 40 pupils.

There are some difficulties in connection with the ability grouping that require continual consideration. Unless the matter is treated wisely and diplomatically, a feeling of inferiority is liable to arise among the limited children. When carried to the home, this produces a real problem in the matter of explaining to the parents the philosophy of the grouping plan. The curriculum for the limited classes is another very real problem. These classes cannot do the quantity nor the quality of work that the normal classes do. A curriculum for the limited class is the great need. In Oakland this problem has been studied and progress is being made.

The curriculum for the atypical class must be different from the Z groups in the quantity and quality of work required. The children with I.Q.'s of 70 or less find academic work very difficult.

The problem of books for limited children is always present and exists whether the pupils are grouped in ability groups or not. For example, there are few social studies texts that can be used independently by limited children in Grades III, IV, or V.

One other serious problem arising whenever the school is organized into ability groups is the matter of obtaining competent, especially prepared teachers to teach the limited classes. It takes a teacher with a certain poise, calmness, and optimism to obtain best results from a limited class. A teacher, successful in a regular class, may fail in a limited class.

Perhaps the best that can be done in ability grouping is to group according to general mental ability. If pupils are homogeneous in reading, they may be heterogeneous in arithmetic or language. Our policy, therefore, is to group on general mental ability and then take care of special abilities and disabilities through special classes, such as reading, art, music, dramatics, rhythms.

We have no special diplomas for pupils of any type. Since ours is an elementary school, the only indication of promotion from one grade to another is the pupil's report card. All pupils receive the same type card. The mark 'S' stands for work that the child's ability warrants. Limited pupils as well as superior ones may receive the same marks, therefore, though the work of the superior may be of much better quality than that of the limited.

5. Hutchins Intermediate School — Detroit ¹

There has been much talk about the use of a 'composite index of ability' as a basis for ability grouping. However, few schools except the Detroit intermediate schools have ever experimented with such an index — other than the P.L.R., which is, of course, a composite of mental and chronological age.

Ability grouping has been followed in Hutchins Intermediate School, Detroit, for fourteen years — ever since its organization. Reasons for introducing it were to enable pupils to progress more nearly at their own natural rate, to remove the hampering influences of average and slow pupils upon the very able, to enable average pupils to progress at their own rate, and to free below-average pupils from the discouragement and failure often resulting when such pupils are instructed in the same class with able and average pupils.

As a result of this policy Hutchins School has very few failures. Every attempt is made to place pupils in sections in which the demands made upon them are in harmony with their abilities. Pupil performance is continually studied by homeroom teachers, classroom teachers, and counsellors. An attempt is made to diagnose the reasons for failure as soon as the possibility of it appears, and the coöperation of the home, the Psychological Clinic, and other competent agencies is enlisted. If thought desirable, the classification of a pupil may be changed. In this way very few failures result. I should say that they run considerably less than one percent.

In forming our ability groups we follow the procedure as suggested by Corrigan and Kennedy, teachers in the school, described elsewhere in detail.² Roughly, this consists of combining into a composite score the intelligence score as determined by the Detroit Alpha Intelligence Test, the elementary teacher's rating of general school ability, and the chronological age of the pupil. The chronological age is included because the intelligence score as we receive it from the Psychological Clinic is given for each separate yearly age group. That is, there are 10-year-old A's, 11-year-old A's, etc. These factors are combined, giving a weight of 5 to the intelligence score, 4 to the elementary teacher's rating, and 2 to chronological age. Pupils are being continually reappraised by homeroom teachers, classroom teachers, and counsellors, and resectioned whenever a need becomes apparent.

The number of ability groups in a grade depends upon the size of the grade. We take the total number of pupils in the grade, arrange them in rank order in terms of the composite score as described above, and divide them into sections from top to bottom. These groups are not numbered in the school to indicate their rank, being numbered as 7B-121, 8B-261, etc.,

¹ From a letter written by H. L. Harrington, Supervising Director of Intermediate Schools, Detroit.

² *School Review*, December, 1927, pp. 780-786. A description of the statistical technique of weighting the elements entering into the composite score. Intelligent use of the method would depend upon an understanding and duplication of the conditions described in the article.

the first part of the number referring to the grade and the last part to the homeroom in which they meet. Enrollment in most of the classes at the present time averages around forty-five. In the days 'when we had money' they averaged around thirty-five. Obviously, in sections of this sort there would be very little difference in ability in middle sections of a large grade of ten or twelve sections. It is evident, too, that the range of ability will be less in a section of a subject required of all pupils, such as English, than in one which is elective, such as Latin, since there will be many more sections per grade of the former than the latter.

When we first began to differentiate according to ability, we had some difficulty in explaining to parents what we were trying to do. Perhaps one reason for this was the practice that we then followed of numbering the sections publicly in such a way as to indicate their rank according to ability in the grade. After we discontinued that practice and minimized all open reference to various differences in ability of the sections, that type of trouble disappeared. We have had no objection from parents for a long time.

The chief difficulty at the present time arises from the fact that we are not able to group by special ability and aptitude except in a limited way. We find oftentimes that the child of average ability may have exceptional ability in mathematics, English, or in some other subject. As far as possible, we take care of pupils of this sort by giving them special individual programs.

We have attempted through our department of instruction to modify courses of study so as to adapt them to high, average, and low groups, and have sought to make differentiation more effective by using easier textbooks for low groups. There is, of course, a tremendous amount of individual adaptation of work to individual pupils being carried on by individual teachers. We demand and are able to secure a much different type of work from able pupils than from the average and the low. Their participation in our extra-curricular program is much more extensive than that of average and low groups. We attempt to keep them working up to the limit of their capacity. I think we have been fairly successful in doing this, although we have not as yet been able to work this out in any consistent system.

6. Gillespie Junior High School — Philadelphia ¹

Junior high schools experimenting with ability grouping in Philadelphia section entering classes on the basis of mental-test results but shift to the results of a battery of achievement tests in the junior-high-school subjects as soon as such results are available. In telling the story of ability grouping in Gillespie Junior High School, the principal has emphasized the easily observable differences in high and low ability groups, and how ability groups cut across economic and social lines.

Ability grouping was introduced into Gillespie Junior High School, Philadelphia, especially to provide more adequately for superior and retarded

¹ From notes provided by Gertrude Noar, Principal, Gillespie Junior High School, Philadelphia.

pupils. It was believed, too, that a more adequate curriculum could be provided thereby for all types of pupils, and that teachers could more easily adjust their standards of marking for all pupils if the pupils were sectioned in classes of more nearly uniform ability.

Groups are formed primarily on the basis of the Philadelphia Mental Ability Tests. However, these tests are supplemented by standard achievement tests provided by the Division of Educational Research, and by comprehensive classroom tests, objective in character, developed by individual teachers or departments. In grouping the entering seventh-grade pupils, the I.Q., the mental age, the chronological age, and the probable learning rate, as indicated by previous achievement, are all used. The method of use is somewhat as follows:

1. The 45 pupils in ranking order of I.Q. from top down are selected tentatively as the highest ability group.
2. The mental ages are then examined. Any pupils who vary greatly from the group are separated from it.
3. The chronological ages are then examined and used as in 2.
4. The achievement, as indicated by the general average of marks, is examined. These are usually all '8' or '9.' Any of '6' or '7' are separated from the group.

Experience shows that pupils with slightly lower I.Q.'s, whose achievement has been exceptionally good, belong in the higher groups. Occasionally, when rearrangements are made on the basis of experience with the children, conformity, classroom attitudes, and habits of work become factors used in the placement of individuals.

Ability groups are not named. Each section is designated, first, by the grade, as 7A, 8A, and so forth, and second, by a number indicating the ability group. This number is determined arbitrarily by the organization committee and varies from term to term. This is done so that pupils are not aware of the group to which they are assigned. There is one exception. Pupils of very low ability taking an especially prepared curriculum are called pre-vocational, and numbered according to the grade—thus, P.V.1, or 7A pre-vocational; P.V.2, or 7B pre-vocational, etc.

Rapid progress groups are largest, varying from 45 to 50 in number. The slower progress groups are kept down to 40, if possible. The pre-vocational groups are kept at 35 or below.

If one were to visit a rapid progress group and then examine the records of individual pupils, he would find that the pupils are younger, smaller, better dressed, cleaner, more alert, and coöperative. He would also notice that they are healthier and better looking, and that a large percentage of them come from families which have for a longer time lived on American soil. The records would bear out these facts and reveal that these pupils are frequently selected by their classmates for leadership in student affairs. In contrast, pupils of the slowest progress groups are older, more mature physically, and more stolid. They are frequently badly dressed, and not very clean. Many have apparent physical defects. The records bear out the impression that these pupils are not so coöperative, that there are many with maladjusted personalities, and that a number are positively anti-social. Records would also

show that many of these pupils come from broken homes, or from socially maladjusted homes.

When classification was first introduced in the school, there were initial difficulties that have since disappeared. There was, for example, an occasional complaint from a parent concerning the type of children with which his child was associated. Teachers had some difficulty in adapting their technique of teaching to the differences in the abilities of the groups. They also had some trouble with standards of marking and of promotion. The organization of the school, particularly the roster-making, presented new difficulties to the principal.

As these initial difficulties were overcome, others of a more fundamental character presented themselves. The increase in size of classes, occurring since the depression, has increased the range of ability in the classes so that the validity of the grouping has decreased. Teachers are still experiencing difficulty in making adjustments to the slowest progress groups. There is still a lack of supplies, textbooks, and equipment to provide adequately for the demands of the more rapid and the slower progress groups. The classification, in so far as it is effective, interferes with a satisfactory use of certain classroom techniques associated with the problem of individualization of instruction. For example, the principal believes that on the one hand the slowest progress groups have few pupils who can act as committee chairmen or leaders of small study groups. On the other hand, she believes that nearly all pupils in rapid progress groups should have greater opportunity for participation in such activities.

Administrative difficulties include that of scheduling parallel classes that would permit of easy regrouping by subjects. Then, too, there is the impossibility of continuing the grouping to all grades and subjects, because of the small number involved in the more advanced elective subjects. Furthermore, there is a feeling that a system of grouping that places pupils of the same ability in the same group in all subjects is not entirely defensible.

The extent of ability grouping is definitely limited by the size of the school, the rooms available, the training of teachers, and inadequate standards upon which to judge the abilities of pupils.

This school has developed a pre-vocational curriculum for the maladjusted pupil of relatively low mentality. Differentiation between the work given to rapid progress and slow progress groups in the regular curriculum is still left to the teacher and the pupils.

Classification does make possible the regular promotion of pupils of low mentality who are making adequate effort, and, at the same time, it has a tendency to stiffen the standards for the promotion of abler pupils. Unfortunately, many of the latter who make little or no effort but whose achievement equals that of the slower pupils are still regularly advanced.

All pupils at present receive the same kind of diplomas, but it would seem that differentiation must come soon, at least to distinguish pupils completing the regular and the pre-vocational curricula.

7. Aptos Junior High School — San Francisco¹

In Aptos Junior High School ability groups are organized 'on paper' in the central department of research for the city of San Francisco and reported to the principal for administration. Emphasis is placed upon the formation of groups with as high a homogeneity as possible from the standpoint of both chronological and mental age.

Ability grouping has been employed at Aptos Junior High School since its opening in 1931. A regular program of testing had been set up in the public schools in San Francisco several years earlier; so when this new Junior High School was opened, all pupils who entered had been tested by means of the Terman or Otis tests of mental ability. Their achievement in reading and arithmetic had also been measured by means of standard tests. The test, however, on which pupils are grouped initially is the Terman Group Test of Mental Ability, Form A.

The promotion policy of the school is adjusted to the plan of ability grouping used. The members of an ability group are promoted individually into the corresponding ability group of the next grade. There may be some few changes as here and there a pupil manifests ability to do much more than the work allotted to the group to which he had previously been assigned.

The basis for forming groups is as follows: The test used is the Terman Group Test of Mental Ability, Form A. The pupils are grouped on the basis of chronological age on one axis and mental age on another axis, and these groups are organized by the Department of Research and reported to the principal. Educational tests are not used for ability grouping. Occasionally, social considerations influence the grouping to a slight degree. The number and names of teaching groups vary. There may be five or six different classes within a given grade and ability group. In this school there are generally about four X groups, one Y group, and one Z group in each grade.

The number of pupils in each teaching group varies from 35 to 48. These classes are all much too large. The groups of lower I.Q. contain fewer pupils than those of high I.Q. The range of numbers should probably be from 20 to 35 instead of that now obtaining.

The pupil has no way by which he can determine with certainty the ability group with which he works. Each group is assigned to a numbered room, and that is the only way in which the group is distinguished from any other group in a given grade. In the programs, however, classes are arranged in descending order, so that the teachers know what particular groups are under their charge, and each teacher has a record card for each pupil showing chronological age and mental age. Every effort is made to prevent a class from being stigmatized in any way whatsoever. It is interesting to know that one number-five group, which is about a Y group considered in relation to the city as a whole, had, for a long period, more students on the honor roll

¹ From a letter written by Chas. A. Simond, Principal, Aptos Junior High School, San Francisco.

and more student-body officers than any other group in the school; and, seeing they had such standing, they thought they were the number-one group, and never discovered the difference. With extremely low or extremely high groups it is more difficult to conceal from them and their parents the true level of their abilities, nor does it make much difference in these cases.

As all San Francisco schools were, at the time this school was opened, organized on the basis of ability grouping, there were no particular initial difficulties. The present difficulties arise from transfers from other cities where similar tests have not been given.

Ability grouping is not followed absolutely. On occasion a pupil may be moved from one group to another in order to assist in the solution of certain social or personality problems.

The curriculum used in the junior high schools of San Francisco provides three-track courses in all academic subjects. The principal difficulty arises in securing sufficient suitable material in English and social science for the lowest and highest groups.

There is no provision for special promotion or diplomas for pupils of low ability. All get the same certificate of completion at the end of the course. The transfers to other schools, however, carry the special designation X, Y, or Z, indicating the ability group in which the grade assignment and the accompanying marks were earned.

The plan of classification in use in San Francisco seems to work out very well, especially with the X groups. In these groups very little rearrangement is needed from the beginning to the end of the course; but, toward the end of the three years, it is frequently desirable for social or personal reasons to regroup some members of the Y and Z groups upward. One big difficulty in some of the Z groups is the failure on the part of the school to develop leadership among the pupils themselves.

8. Junior-Senior High School — Batavia, New York¹

A judicious combination of differentiation of the curriculum by double-track courses in a single subject and by substitution of other courses more in keeping with the interests and abilities and probable future of the pupils marks the plan for the grouping of pupils according to ability in the junior-senior high school of Batavia. Thus is emphasis given to the idea that a properly balanced pupil load, interest and ability considered, does most to develop character and citizenship.

The Batavia Junior-Senior High School at present enrolls about 1600 pupils. It is a five-year school containing Grades VIII to XII. At the opening of the school year in 1924 the seventh and eighth years were formed into ability groups, but there was no differentiation in the curriculum. Batavia

¹ From a letter written by H. D. Weber, Principal, Junior-Senior High School, Batavia, New York.

is an industrial city, and, as a result, has, in addition to the ranges of ability found in the average American community, a considerable Italian and Polish industrial population. It was soon found impossible to serve this varied group with one type of curriculum. About eight years ago, after consultation with the Director of the Educational Research Division of the State Education Department, a more comprehensive program was planned to meet the needs of the varied abilities of the pupils.

The Junior-Senior High School of Batavia is constantly adapting its curricula to the needs of its pupils in order to bring interest and achievement within reach of the entire school population. As a result, about ninety percent of the boys and girls of secondary-school age attend school, and from sixty to seventy percent of those who enter the ninth year are graduated. At the present time there are ten classes in the eighth year, and nine in the senior class. From this it can be seen that a comparatively small number of pupils are eliminated.

About four years ago, because of the crowding, the seventh-grade pupils were left in the elementary schools. However, the policy of grouping by ability has continued in so far as possible in the seventh grade. At the end of the seventh year the grade principals send the record cards for their seventh-grade groups to the high school. These cards contain information concerning the school work of each pupil for the year just ended. They also give additional information, such as the I.Q. derived from the Otis Self-Administering Test of Mental Ability in the fifth, sixth, and seventh years, the teacher's opinion of the student's ability, the student's record as to discipline and school citizenship. The cards also give the records of all the standard tests that have been administered, as well as any personal information concerning the student that may be of help from the standpoint of guidance. During the summer, the principal studies these cards carefully, and from the information found on them separates the whole group into slow, average, and superior divisions.

From the pupils' election cards, groups are formed according to courses. Each year in the eighth grade there are a slow, an average, and a superior group in the commercial course; a slow and an average group in the industrial arts course; and an average and a superior group in the college-entrance course. In addition there is a very slow group made up of typical low I.Q. students. This group is not departmentalized for academic work.

The regular classes vary in size from 25 to 40 pupils. The slow groups are somewhat smaller.

The curriculum for the slow groups has been modified to meet the abilities of these pupils. In certain courses the subjects offered have been radically changed. This is particularly true in mathematics. The courses in ninth-year mathematics are especially adapted to students of industrial arts, commercial subjects, and home economics. In the other subjects, the teachers have modified the curriculum according to their judgment of what is best suited to the particular group and to its abilities. In the eighth year, four different examinations, each covering different levels of ability and each passing the student into high school, are offered. The State of New York requires that the regents' examinations be given in the upper years of high school to the

average and superior groups. The state syllabus in each course is the basis for the work covered. However, the average groups cover the minimal requirements, and the superior groups are supposed to have a greatly enriched course. The slow groups have their own special course and examinations, which are below the standard of the regents' examinations.

One of the difficulties that presented itself in connection with the problem of reorganizing the Batavia Junior-Senior High School into ability groups was the resistance to change on the part of a large number of the members of the faculty. It has taken time and effort to educate them to the advantages of having pupils of the same general-ability levels grouped together. However, the idea has now been adopted by more than ninety percent of the staff.

Another problem that continues to provoke a great deal of thought is that of maintaining a democratic spirit among the pupils of the school. Slow groups show some tendency to separate themselves from the rest of the school in all activities; the pupils of the highest ability group show the same tendency and sometimes affect an attitude of superiority. Here, the solution lies, it would seem, in selecting the proper type of teacher to handle groups at both extremes of the scale.

Pupils, themselves, accept ability grouping approvingly. It has been explained that all high-school students are not preparing for college. As a matter of fact, the type of differentiated curriculum, which ability grouping has helped evolve, makes it possible for students who could never achieve college entrance to become very proficient in such courses as the industrial arts. However, whenever pupils from the slow division have insisted on joining the groups preparing for college entrance, the request has always been granted, usually with the result that, after a struggle of a year or two, they or their parents have requested that they be allowed to change courses.

Up to date, the slow groups have been graduated with the regular groups, and have received the same diploma. However, each diploma carries a complete record of the work of the student through his high-school course, giving subjects, standings received, and standard of work done, and is marked "regents' standard," or "non-regents' standard."

The work up to date has been entirely experimental, and, doubtless, a great many mistakes have been made. Because of the small size of the city system, there is not the opportunity to do so much research in the field of education as is possible in larger systems. However, the experiment seems to have been worth the effort. At least the results of the experiment — a much larger percentage of the adolescent population in high school, and a wholesome spirit of work, of success, and of coöperation in the student body — are evidences of the attainment of two aims generally sought in education.

9. Kensington High School for Girls — Philadelphia ¹

The gradual substitution of the results of measured mental ability and achievement for teachers' opinions in the organization of a high

¹ From notes provided by Harriet J. Link, Principal, Kensington High School for Girls, Philadelphia.

school so as to meet the needs and abilities of its individual pupils marks the procedure at Kensington High School for Girls.¹

When some four or five years ago ability grouping was formally introduced into the English department of Kensington High School for Girls, there was already a well-developed tendency in the school to divide classes into such groups by more or less rule-of-thumb methods. This tendency was an old one, but it rapidly developed into a settled policy with the presence in the student body of increasing numbers of pupils unable to work successfully on the standard senior-high-school level.

In subjects covering more than one term, pupils are promoted when they have met the minimal requirements of the course of study, and have satisfied the teacher as to their ability to do the next term's work in the ability group to which they have been assigned. The initial basis for classification of pupils entering the ninth grade is the I.Q. checked against the achievement as shown by the eighth-grade marks. Where standard educational test results are available, the level of achievement shown is considered. Department heads keep cumulative records of the standing of pupils on the various tests, both mental and educational, given by the Department of Educational Research. These are considered along with the high-school achievement records in determining the group in which the pupil is classified.

The chief test in determining group classification is the Philadelphia Test of Mental Ability. Achievement tests given widely and used to supplement the findings of the mental tests are the Nelson Silent Reading Test, the Haggerty Reading Examination, the Philadelphia English Test, and the Philadelphia Reading Comprehension Test. Departmental tests, given in the social sciences, commercial subjects, and science, are also useful for purposes of classification according to ability.

During the present semester, the specific set-up in English is as follows:

15 rapid progress sections — approximately 600 girls.

20 slow progress sections — approximately 800 girls.

20 average sections — approximately 800 girls.

5 Z sections — approximately 150 girls.

The organization of classes in social studies is as follows:

19 rapid progress sections — approximately 705 girls.

11 slow progress sections — approximately 400 girls.

3 Z sections — approximately 140 girls.

Z sections are not usually maintained beyond the tenth grade.

The commercial department is attempting classification, but the ability groups usually break up in the eleventh and twelfth grades, because of conflicts in roster-making.

Four major difficulties have been encountered: (1) the school is not large enough to permit a sufficient number of classes in elective subjects to maintain

¹ P. A. Boyer. "Practical techniques for individualization." *Schoolmen's Week Proceedings* (University of Pennsylvania, 1932), pp. 149-158.

the integrity of classification in these subjects, particularly in the upper grades; (2) it is seldom possible beyond the ninth and tenth grades to maintain parallel classes; that is, classes in the same subject and grade, but of different progress rates, on the roster at the same period. This makes it very difficult to shift pupils to the appropriate group when it is discovered that they are wrongly placed; (3) it is difficult to get satisfactory texts and equipment for the lower ability groups; (4) under present economic conditions, classes in the lower ability groups are too large for the most effective results.

The curriculum prescribed for Z pupils — a group now made up of pupils below 90 I.Q. — is under constant revision to provide a better definition of maximal and minimal standards. Differentiation of curriculum for the other ability groups depends largely upon the pressures created by differences in the ability of the pupils, and the ingenuity of the teacher in interpreting her subject in the light of the pressures exerted by the pupils themselves.

Diplomas are uniform for all groups, although differentiated diplomas have been considered and urged by the senior-high-school principals of the city of Philadelphia.

10. John Adams High School — Cleveland¹

In both college preparatory and vocational courses, John Adams High School tries to maintain absolute standards; that is, standards that will enable the school to place graduates in college, industry, or business with reasonable certainty. In all general courses a relative standard is the rule. Ability grouping and careful guidance have been the tools used to effect this result.

The population served by John Adams High School, Cleveland, is as cosmopolitan as that served by any other school in the city. The wide variations in social-economic background and in intelligence, coupled with the fact that the school was opened at a time when it was popular to try to classify pupils according to ability, made it inevitable that the school should use a plan of ability grouping from the beginning.

The promotion policy of the school is in some respects rather rigorous. In any elective subject, either in the college preparatory course or in courses that have immediate occupational outlets, an absolute standard of achievement for passing is the rule. However, in other courses, both the marking systems and the promotion standards are flexible enough to accommodate themselves to the needs and abilities of all pupils. Examples of what is meant here follow:

In general, there is no clearly defined differentiation in the marking system for different ability groups, although a differentiation in content in required subjects inevitably makes for differentiation in the marking system for pupils at different levels of ability. In any elective subject either in the college

¹ From information furnished by E. E. Butterfield, Principal, and Mark D. Gordon, Vocational Counsellor and Senior Adviser, John Adams High School, Cleveland, Ohio.

preparatory course, or in courses having immediate occupational outlets, an absolute standard is the rule.

Solid geometry is an elective. No differentiation is made in standard or marking system in this subject for pupils below average in ability. Shorthand is a skill subject. Standards of words per minute and errors allowed are the same for all. Counsellors, however, interview all pupils who enter beginning shorthand and so eliminate at the outset many potential failures. If pupils of low ability insist, and their parents support them, they are permitted to enroll in these elective subjects. Thereafter they either meet the standard set for all or fail.

In required English, however, the content or amount, or both, may be entirely different for a group of pupils distinctly below average from what it is for an able group. To that extent, of course, there is differentiation in the marking system. Teachers of these diluted courses, however, are not likely to bestow high marks in profusion. The only general rule is to the effect that any pupil who approximates his best in a required course should not fail, and no pupil should pass in an elective academic course unless he meets the objective standard set for passing.

In view of the emphasis placed upon achievement for promotion in elective subjects, grade groups in a particular subject tend toward homogeneity with respect to achievement rather than rate of learning. Hence, the basis for ability grouping is primarily the P.L.R., or group-test I.Q. However, a record not only of this but of more diverse information is kept and used. This record is begun in the junior high school, and it includes, along with mental-test marks and achievement marks, references to the character and working habits of the student. The record is continued in the senior high school, and all the data appearing on it are considered in classifying pupils. A mechanical index number combining the various data on the card has been attempted, but is not in use at present. Due regard has been given to the findings of the research department that, generally speaking, pupils tend, in the long run, to be as good as their best records at any one time, rather than like their average records, or as poor as their worst.

The mental tests used are the Cleveland Classification, the Otis Self-Administering Tests of Mental Ability, the Otis Group Intelligence Scale, and the Henmon-Nelson Test of Mental Ability.

Pupils are classified into three groups: a group distinctly below average in ability, with P.L.R.'s of 89 down; a group regarded as average, with P.L.R.'s of 90 to 109; and a group regarded as superior, with P.L.R.'s of 110 and over. However, all pupils are assigned to these groups tentatively, and are subject to retesting and reassignment upon the advice of classroom teachers. The entering class at John Adams High School is now somewhat below average for the city at large. More than one-third of the pupils fall into the Z group. Because of careful teaching, on the one hand, and heavy elimination, on the other, the graduating class each year is always much above the average for the state at large according to Ohio State University Psychological Tests. The groups just enumerated are set up for the purpose of making adjustments in the curriculum. However, the first practical problem is that of organizing the school by ability groups. The process is somewhat as follows:

Pupils taking each and every subject are arranged into three or four convenient groups according to P.L.R. Each of these groups is subdivided into groups of proper size for a class section.

Appropriate curricula are then given to the pupils of the several teaching groups thus organized. This is easier in the newer subjects, which are not so bound up by traditional standards.

In the homeroom, although they are segregated by sex, all pupils are grouped without regard to scholastic ability. This is regarded as desirable for social integration. In the advisory or guidance periods no effort is made to group pupils according to ability, but some segregation results because of their classification in academic subjects. For example, all tenth-grade pupils meet once a week in an advisory or guidance period. These meetings are scheduled for the second, fourth, sixth, and eighth periods. If, during the eighth period, two or more high P.L.R. groups are assigned to English, or any other subject, they could not for that reason be scheduled for a guidance class. The result would be that low or medium levels of ability might predominate in that period.

Pupils are classified in physical education on the basis of a series of physical tests yielding a physical ability index (P.A.I.). P.A.I.'s do not correlate very closely with P.L.R.'s. However, the P.A.I.'s predict success in physical education much as the P.L.R. does in academic work.

There is no effort to classify pupils according to ability in the extracurricular activities. It follows that there is some segregation, however, because the interests of pupils are affected by their abilities. A debating group, for example, is likely to be composed largely of pupils of high ability.

It is extremely difficult in the nature of things to carry ability grouping into every grade and course in the school. There is no possibility of grouping where only one section of elective work is offered; and where the number of sections is limited to two or three, conflicts with other subjects may create serious difficulties. The school does not succeed in overcoming all these difficulties. However, the master schedule is planned to anticipate and prevent as many of these conflicts as possible. For example, if only one section of 12A Latin is offered, it is never offered at the same period as the best section of 12A chemistry. Adjustments of the curriculum to meet individual needs are intended to cover all conflicts.

Up to the present time, exactly the same diploma has been issued to all students. The school is now in the process of changing to a new form. The face of this diploma will be the same for all graduates, but the reverse will show the courses carried by the pupil, with marks and ratings in each course, and the records of special merit or accomplishments.

11. West Technical High School — Cleveland ¹

Ability grouping has been one of the chief tools in bringing the pupils of West Technical High School to an achievement corresponding to their capacity.

¹ From a conference with the principal, Mr. C. C. Tuck, and a letter written at his request by Mr. M. P. Effron, in charge of mental testing, West Technical High School, Cleveland.

Four years ago, ability grouping was begun in four departments of West Technical High School; namely, English, social science, natural science, and mathematics.

There were various reasons for the introduction of a system of classification according to mentality. Teachers were experiencing difficulty in discovering a teaching technique that could be utilized for the wide range of mental ability in any single class. They found that, if their teaching was adapted to the ability of the brilliant students, the weaker students were 'lost.' An attitude of hopelessness was developed; desire for progress was crushed. On the other hand, if the weaker students received a great deal of attention, there was not sufficient 'drive' to cause the bright students to do even approximately the work of which they were capable. Correlation studies showed an average correlation of .35¹ between achievement and mental ability with many classes showing r 's of 0 magnitude, or negative.

Classification at West Technical is on a double basis. Pupils who are promoted to any given grade in any subject are assumed at the start to be fairly homogeneous as to achievement. Ability groups are first formed on the basis of the I.Q., called in Cleveland the 'probable learning rate.' Then the real facts as to achievement are faced. Departmental achievement tests are used to sort pupils of the same probable learning rate into those who are well prepared, those who have average preparation, and those who are poorly prepared. The large size of the school makes it possible frequently to have three or more high, or X, groups, according to P.L.R., that are then subdivided according to achievement in algebra or geometry, into high, average, and low achievement groups or divisions.

P.L.R.'s are derived from the Cleveland Classification Test scores. They are used in making the initial grouping into X, Y, and Z sections. The X sections consist of students whose P.L.R.'s are 110 or higher; the Y sections consist of students whose P.L.R.'s range from 90 to 110; the Z sections are made up of students whose P.L.R.'s are below 90.

Whenever possible, two or more classes of the same section of a particular subject are scheduled in the same period of the day. For example, three 10B-X geometry classes will be scheduled in the first period, three 9A-Z general science classes will be scheduled in the fourth period, etc. The students in the three sections within a group are then reclassified on the basis of achievement tests. These subject tests are constructed by the departments in which ability grouping takes place. Constant shifting may occur between these sections; and, not uncommonly, all but a few X's finish a year's work with high achievement, however poor their work in the beginning.

Teachers have certain students retested if the achievement of these students does not, after trial, begin to agree with their P.L.R.'s. The Otis Self-Administering Tests of Mental Ability and the Terman Group Test of Mental Ability are used for retesting. Changes from one section to another are then made if the scores on the retests indicate such changes.

At West Technical there are a considerable number of individuals who are apparently incapable of doing even acceptable Z work. The majority of these individuals do not intend to graduate. They are given special programs that

¹ In June, 1934, $r = 0.65$.

consist of special English, special social science, and shop work of their choice. If these students ever decide to graduate, they must follow one of the regular curricula. In the eleventh year the high P.L.R. students who are in technical curricula begin the study of world history, followed by American history in the twelfth year. The pupils enrolled in special law and special economics classes, mentioned above as special social science, are, for all practical purposes, of Z caliber, and the courses are adjusted to the needs of pupils of that ability.

Certain other changes in the courses of study will go into effect next fall. These changes will probably permit a few more low-ability students to graduate than at present, owing largely to the fact that only one year of mathematics and one year of natural science will be required. However, no special promotions or special diplomas are being considered at present.

IV. SOME FURTHER DEVELOPMENTS

The State Department of Education in Ohio is just now revising its standards for the accrediting of secondary schools. Conferences are being held with principals and superintendents over the state. Nothing seems more certain than that the vast influx of students of low ability during the depression years is to be recognized as a major problem and experimental effort toward its solution set down as one of the requirements of a good secondary school. Larger schools will, it seems, move in the direction of ability grouping or homogeneous grouping, and only the very small ones in the direction of individualization of instruction. This move and the move in Washington, D. C., toward adjusting the curriculum requirements to the abilities of pupils in the course of the experiment in character education seem to be the most significant indication of the current trend in dealing with individual differences.

SECTION V

EVALUATION OF ABILITY GROUPING

PREFATORY NOTE

No attempt has been made in this section to summarize the experimental literature on ability grouping, for several excellent summaries have already been published and are easily available. Rather, an effort has been made (1) to present new material, and (2) to show to what extent the older material answers the questions we must raise concerning the effect of ability grouping on children.

In Chapter XIV Doctor Rankin and his associates have summarized part of a very extensive experiment carried on in Detroit over several years. The reader's attention is called particularly to the different results in reading and in arithmetic. In reading, the vertical plan (ability grouping) was found superior to the other plans; in arithmetic, the Detroit plan was found superior. One is led to speculate as to what the results in arithmetic would have been, had individualized instruction been introduced in the vertical plan to the extent it was in the Detroit plan. It has been pointed out elsewhere in the Yearbook that ability grouping and individualized instruction should supplement each other and not be considered alternative procedures.

It is of crucial importance, in deciding whether or not to organize ability grouping in a school system, that we know what effect it has upon pupils. Doctor Cornell has analyzed the results of experimental studies in Chapter XV, not only to answer this question so far as present data permit, but also to explain the reasons for apparently conflicting results.

W. W. C.

CHAPTER XIV

ABILITY GROUPING IN THE DETROIT INDIVIDUALIZATION EXPERIMENT

PAUL T. RANKIN, C. T. ANDERSEN, and W. G. BERGMAN
Department of Curriculum and Research
Detroit Public Schools, Detroit, Michigan

I. PURPOSE OF THE EXPERIMENT

The Detroit experiment in individualization¹ was conducted to evaluate the effectiveness of several different instructional organizations that varied in the degree and type of their adjustment to individual differences. Three of these plans — the informal, and adaptations of the Dalton and the Winnetka — represented a greater amount of adjustment to individual differences than was generally characteristic of Detroit schools. Another plan — the mass instruction — varied from the usual Detroit procedure by the removal of the individualized materials and methods already in general use in Detroit and the substitution for them of mass methods in a class with not more than two divisions. The fifth plan was the regular Detroit procedure. The sixth plan, called 'vertical grouping,' was an effort to carry much farther than usual the principles of ability grouping and to adapt materials and methods to the characteristics of bright, average, and dull children.

For the purpose of the present report, the findings regarding only three of the plans will be presented. These three — vertical grouping, typical Detroit, and mass instruction — constitute a scale of degree of adjustment to group differences in bright, average, and dull children. Two schools (three in vertical grouping) were assigned to each plan and were given help in developing the adopted pattern.

¹ For additional information about the experiment, see Paul T. Rankin. "The Detroit experiment in individualized instruction." *Individual Instruction* (later, *Modern Education*), 1: February, 1929, pp. 12-15. Wendell Vreeland. "Detroit's experiment on individualization." *School and Society*, 32: September 20, 1930, pp. 398-402.

II. PROCEDURE

The experiment opened formally in February, 1928, when the schools made the changes contemplated. The first semester was used as an orientation period. Following this, the plans were appraised over a period of two years on the basis of growth measured by educational tests, the judgment of special outside observers, and the reactions of the teachers participating in the experiment. The educational tests ranged in number from two to nineteen in each half-grade and were given at the beginning and the end of the years 1928-29 and 1929-30. The first year the tests were administered and scored by outside examiners. The second year the regular teachers administered and scored many of the tests under supervision. All tests were tabulated and analyzed in the central office.

The method used in this experiment was the equivalent-group method. The schools used were all selected from among the middle third of Detroit schools when ranked in order of average pupil intelligence. All were platoon schools, because that is the prevailing organization in Detroit. Each pair included one twenty-four-section school in a relatively modern building and one sixteen-section school in a relatively old building, again because these are representative conditions. Further, the pupils constituting the experimental group in each plan were matched in the following regards: half-grade, age, brightness (three divisions: A and B; C+, C, and C-; D and E). Experimental groups were not matched on initial test scores, but such scores were secured and were demonstrated to be substantially the same in the equivalent groups. The results of objective tests were used in the form of gains rather than of final scores and, therefore, differences in initial test results become less significant.

An attempt was made, therefore, to hold constant for the children in all the experimental schools the general conditions affecting their instruction, including the size and type of school and type of neighborhood. The variable that became the experimental factor was the degree of use made of the principles of ability grouping developed elsewhere in this Yearbook.

The basic plan was the typical Detroit organization and teaching procedures. In it the pupils were grouped by half-grade and were classified as X, Y, or Z, although classes made up wholly of any one of these three groups were very unusual. Commonly, if there were more pupils in a given grade than were required for a section, the X's and

high Y's were put together in one section and the Z's and low Y's in the other. Standard Detroit materials and methods were used throughout. Wherever these methods provided specifically for differential treatment of bright, average, and dull pupils, these methods were followed. However, most of the methods and materials presupposed the formation of groups that varied from subject to subject and from time to time within each subject. A major use of the X-Y-Z grouping was the information thus provided to the teacher regarding the general intellectual level of individual pupils in the class.

In the schools in the mass instruction plan,¹ a deliberate attempt was made to teach all pupils in the same way. This was done by using the same materials and the same methods for all and attempting to hold all pupils to the same standards. Standard Detroit materials designed to promote adaptation to individual differences were replaced in these schools by other materials better adapted to mass instruction. The pupils in each room were divided into not more than two groups, which were kept permanent and constant in all subjects. No attempt was made to make the groups homogeneous in pupil ability.

The vertical grouping plan² was designed to carry the principle of ability grouping farther than is true in typical Detroit schools. All children were classified as X, Y, or Z and a special effort was made to make classes homogeneous in brightness level, even though two or even three half-grades might have to be combined to make up a class. It was this characteristic of grouping pupils of different grades but of the same brightness to form a section of full size that gave the plan its name. On account of the fact that each section was an X, Y, or Z class, it was possible to differentiate methods and materials of teaching to a greater degree than usual.

Both subjective and objective data were gathered as the basis of appraisal of the different plans. Subjective data included: (1) the opinions of the teachers and principals of the schools participating in the experiment; and (2) the judgments of relative merit made by selected observers. Objective data included results on educational tests. In the present report, data for the tests in reading and arithmetic will be presented.

¹ Grace Bateman and A. F. Schultz. "The mass instruction plan." *Detroit Educational Bulletin*, 12: No. 8, April, 1929, pp. 18-19.

² Inez Kepperling, Edith Shaw, and Grover Stout. "The vertical grouping plan." *Detroit Educational Bulletin*, 12: No. 7, March, 1929, pp. 4-5.

III. RESULTS

1. Judgments by Participants

The first findings to be reported are the judgments on the plans expressed by the teachers and principals who worked with them. At the close of the experiment these participants in the plans were asked to write out their reactions and also to answer a series of questions. Such questions as these were asked: "4. Do you feel that the experimental method that you have been using produces better all-round results than the Detroit method?"

Table I shows the percentage of teachers in the vertical grouping and mass instruction plans who judged the plan on which they were working to be superior to the typical Detroit procedure in the development of each of the items listed. Evidently if the teachers in a plan on

TABLE I. — PERCENTAGES OF TEACHERS IN VERTICAL GROUPING AND MASS INSTRUCTION PLANS JUDGING THEIR PLAN SUPERIOR TO THE TYPICAL DETROIT PROCEDURE IN SELECTED CRITERIA

<i>Criterion</i>	<i>Vertical Grouping</i>	<i>Mass Instruction</i>
In obtaining the proper balance between pupil freedom and efficient organization	90	51
In obtaining pupil self-control	81	34
In obtaining economy of pupil time	85	58
In obtaining economy of teacher time	75	74
In developing pupil self-reliance	80	20
In training children in the acceptance of direction ..	84	74
In appropriateness for X's	95	27
In appropriateness for Y's	87	61
In appropriateness for Z's	75	62
In appropriateness for Grades 1 and 2	60	58
In appropriateness for Grades 3 and 4	77	52
In appropriateness for Grades 5 and 6	84	47
In advancing pupil health	61	56
In training in home membership	63	51
In training in worthy use of leisure	83	25
In developing ethical character	75	38
In developing citizenship	77	45

the average considered their plan equal to the typical Detroit procedure, 50 percent would judge it better and 50 percent would judge it poorer than the typical Detroit procedure. Actually, considerably more than half of the teachers in the vertical plan judged their plan

superior to the typical procedure in every criterion. The mean percentage for all criteria was 78.4 percent for the vertical plan, and 49.0 percent for the mass instruction plan. It should be noted also that 95 percent of the teachers in the vertical grouping plan considered this plan superior for X's, 87 percent superior for Y's, and 75 percent superior for Z's.

2. Judgments by Observers

The second mode of appraisal is the report of specially selected and trained observers. Assistant principals in fifty Detroit schools outside the experiment were designated as observers to visit the experimental schools. Each observer spent one-half day with each plan during the final semester of the experiment. An observation schedule was provided to guide the observers and to objectify somewhat their judgments as to the degree to which each plan was meeting the specifications contemplated.

TABLE II. — MEAN RANKS ASSIGNED BY OUTSIDE OBSERVERS TO SIX EXPERIMENTAL PLANS AS TO DESIRABILITY IN SELECTED CRITERIA

<i>Criterion</i>	<i>Vertical Grouping</i>	<i>Detroit</i>	<i>Mass</i>	<i>Win- netka</i>	<i>Informal</i>	<i>Dalton</i>
Pupil freedom	4.48	3.81	5.46	1.97	2.67	2.00
Honesty	3.74	3.05	5.06	2.57	3.29	2.95
Economy of time ...	3.55	2.89	4.29	2.71	3.04	3.23
Self-reliance	4.14	3.80	4.92	2.30	2.88	2.23
Acceptance of direc- tion	3.83	2.88	3.46	3.17	3.21	3.21
Adaptability to X ..	3.93	3.55	5.08	1.93	3.00	2.30
Adaptability to Z ..	2.76	2.14	4.22	3.66	2.88	4.21
Adaptability to 4A .	3.12	2.30	4.65	3.27	2.77	4.25
Adaptability to 6A .	4.21	3.08	5.00	2.52	2.95	2.48
Teacher effort	3.12	2.96	3.58	3.19	3.62	3.75
Personal teaching preference	3.80	2.14	4.88	3.23	2.87	3.56
Preference for child- friend of yours ...	3.68	2.19	5.04	3.50	2.55	3.81
Physical conditions of child	3.75	2.19	5.11	2.73	3.50	2.95
Social adaptability ..	4.39	2.64	5.30	2.54	3.14	2.35
Mean	<u>3.75</u>	<u>2.83</u>	<u>4.72</u>	<u>2.81</u>	<u>3.03</u>	<u>3.09</u>

After all the observations had been completed, each observer was asked to give his general impressions of the different plans by ranking

them from 1 (highest) to 6 (lowest) in effectiveness from several points of view, such as the degree to which the plans are adapted to the needs of able children, slow children, lower grades, upper grades, and so on. The distribution of the ranks assigned to the individual plans in fourteen different items ranges for every plan from sixth place to first place. Table II shows the mean rank on each item for each plan. Observers give to mass instruction the lowest average rank, to the vertical grouping plan the next lowest rank, and place the other four plans closely together at the highest rank. The actual figures are: Winnetka, 2.81; Detroit, 2.83; informal, 3.03; Dalton, 3.09; vertical, 3.75; mass, 4.72.

3. Results in Reading Tests¹

The testing program in reading in Grades 4B through 6B included four different tests of ability to understand written language: The Stanford, Detroit Reading Test 6, Detroit Reading Test 3, and the Ayres-Burgess. The Stanford and the Ayres-Burgess tests are probably familiar to all. Detroit Test 3 measures comprehension of brief paragraphs by asking questions concerning them. Detroit Reading Test 6 is a vocabulary test quite similar to the vocabulary section of the Stanford test.

The mean gains in school-year units in all four tests for both years, together with a composite score called 'reading ability,' are presented in Table III. The data are organized both for all pupils and for three brightness levels. On the Stanford test, the most reliable test of the battery, the vertical plan made the largest gain whereas the Detroit and the mass plans made practically the same gains. The superiority of the vertical plan is slightly greater than one-third of the gain that is normally made during a year's instruction. On Test 6 there is practically no difference between the vertical and the Detroit plans, both being slightly superior to the mass plan. On Detroit Test 3, the Detroit plan is slightly superior to the vertical plan and both have considerable superiority to the mass plan. On the Ayres-Burgess test, a test of following directions, the mass plan is decidedly superior to the vertical plan, which ranks second, and to the Detroit plan, which ranks third. This superiority is more than one-fifth of a year's growth.

A composite score has been found by weighting the results of these four tests according to the square root of the time limit and the num-

¹ Reading and arithmetic test data are not presented for the three experimental plans involving individualized instruction because this report relates particularly to differences in ability grouping.

TABLE III.—READING: MEAN GAINS IN SCHOOL-YEAR UNITS
GRADES 4B THROUGH 6B

Test:	Stanford Test	Detroit Reading Test 6	Detroit Reading Test 3	Ayres- Burgess Test	Reading Ability
Years:	1928-29 and 1929-30	1928-29 and 1929-30	1928-29 and 1929-30	1928-29	Composite Score
Weight in composite	3.6	1.8	1.4	0.5	
<i>All Pupils</i>					
Mean number	351	363	368	433	1515
Vertical {	Mean 1.18	1.02	1.08	0.74	1.09
	σ mean 0.054	0.035	0.046	0.077	
Detroit {	Mean 0.79	1.03	1.12	0.66	0.90
	σ mean 0.057	0.044	0.047	0.088	
Mass {	Mean 0.80	0.95	0.93	0.97	0.87
	σ mean 0.071	0.052	0.068	0.133	
<i>Bright (A and B)</i>					
Mean number	91	94	95	113	393
Vertical {	Mean 1.24	1.12	1.13	0.82	1.16
	σ mean 0.088	0.066	0.089	0.133	
Detroit {	Mean 0.85	1.28	1.06	0.58	0.98
	σ mean 0.119	0.083	0.108	0.188	
Mass {	Mean 0.66	1.21	0.93	0.68	0.85
	σ mean 0.188	0.084	0.135	0.254	
<i>Average (C+, C, C-)</i>					
Mean number	223	221	230	258	932
Vertical {	Mean 1.15	1.00	1.06	0.78	1.07
	σ mean 0.069	0.042	0.056	0.110	
Detroit {	Mean 0.78	0.97	1.12	0.63	0.88
	σ mean 0.070	0.055	0.074	0.121	
Mass {	Mean 0.83	0.91	0.97	1.17	0.90
	σ mean 0.079	0.068	0.084	0.177	
<i>Dull (D and E)</i>					
Mean number	37	48	43	62	190
Vertical {	Mean 1.20	0.92	1.33	0.41	1.10
	σ mean 0.177	0.135	0.150	0.188	
Detroit {	Mean 0.70	0.80	1.65	0.96	0.92
	σ mean 0.156	0.122	0.173	0.210	
Mass {	Mean 1.05	0.59	1.01	0.67	0.90
	σ mean 0.184	0.115	0.221	0.254	

ber of years the test was used. This composite score shows that the vertical plan is superior to the Detroit plan by about one-sixth of a year's growth and superior to the mass plan by about one-fifth of a year's growth.

The table shows similar comparisons for the three different brightness levels. In composite score, the vertical plan is superior to the Detroit plan, which ranks second, and to the mass plan. There is practically no difference between the Detroit and the mass plans for average and for dull pupils. For the bright pupils, the difference between the Detroit plan and the mass plan is more marked than the difference between the vertical plan and the Detroit plan.

The superiority of the vertical over the Detroit plan is remarkably consistent, amounting to about one-sixth of a year's growth for bright, for average, and for dull pupils. Its superiority over the mass plan is approximately the same for average and for dull pupils, but for bright pupils amounts to about one-third of a year's growth. However, the differences are not great in comparison with the standard deviations of the means.

The implications of the differences between vertical, Detroit, and mass plans may only be understood by reference to the differences among them in the teaching of reading. Let us first examine the typical Detroit procedure in Grades 4B through 6A. This procedure is essentially a three-group reading method and at the time of the experiment might be described as follows: The children are classified for reading in three groups on the basis of reading ability as shown by test results and teacher judgment. The A-group (the ablest readers) devotes the bulk of its time to free reading. The B-group does considerable reading under direction, largely in readers, and takes checks of various sorts to test comprehension. The C-group (the poorest readers) emphasizes the mechanics of reading, including drill upon phonics and vocabulary exercises as a means of comprehension.

The vertical plan was so called because pupils of the same brightness level in two, or even three, adjacent half-grades were thrown together to form a class when there were not enough pupils of the same brightness level in a single half-grade. Regular Detroit methods and materials were used, but were differentiated as much as possible for bright, average, and dull pupils.

The mass plan avoided any attempt to individualize instruction. Such groupings as were made at the beginning of the year were permanent and were the same in all subjects. Not more than two groups

were ever formed. All pupils in the group used the same book at the same time and followed the same assignment.

4. Results in Arithmetic Tests

In the field of arithmetic, results are available on three tests that were used in Grades 3B through 6B. These are a computation test (the Courtis Supervisory Tests A and B), the Detroit reasoning test, which is similar and equivalent to the Stanford reasoning test, and a curriculum test covering the particular subject matter studied in each half-grade. The reasoning test was administered in 1928-29. The other tests were used in both 1928-29 and 1929-30.

The mean gains on the three tests, together with the composite score called 'arithmetic ability,' are presented in Table IV in school-year units. The data for all pupils indicate that in the computation test the Detroit plan leads both the mass and the vertical by approximately the same amount, three-tenths of a school year. In the reasoning test and in the grade test, the Detroit plan again leads, although the amount of its superiority is smaller. The composite score for arithmetic ability (obtained in similar manner as the reading composite score) shows the Detroit plan to be superior to the vertical plan by about one-seventh of a school year, and to the mass plan by one-fifth of a school year.

The superiority of the Detroit plan over the other plans is consistently revealed on every level of intelligence, although the differences are small in relation to the sigmas of the means. It is most significant for pupils of average brightness, where it amounts to about one-sixth of a school year over the vertical and slightly more over the mass.

What was the Detroit method of teaching arithmetic that led so consistently? In taking up a new unit of work, the first step is to teach a developmental lesson illustrating the new procedure as applied in the solution of a concrete problem. The second step is to test the class on the new procedure, and separate those who have grasped the idea from those who need further help. Those who are successful on the test are then given opportunity for further practice in order to attain skill and mastery; the others are given further assistance and developmental work. These slower ones are retested periodically, and, as soon as they demonstrate adequate understanding, they are given drill for mastery. At the close of the unit a final test is administered and the implications and relationships of the new procedure are brought out through an interpretative discussion. It is apparent that such a

TABLE IV.—ARITHMETIC: MEAN GAINS IN SCHOOL-YEAR UNITS

Grades:	Computation 3B-6B	Reasoning 4B-6B	Grade 3B-6B	
Test:	Courtis Supervisory Test	Detroit Reasoning Test	Detroit Arithmetic Test 7	Arithmetic Ability
Years:	1928-29 and 1929-30	1928-29	1928-29 and 1929-30	Composite Score
Weight in composite	1.0	0.8	1.7	
<i>All Pupils</i>				
Mean number	533	567	446	1546
Vertical {				
Mean	0.88	1.49	0.80	0.98
σ mean	0.258	0.061	0.092	
Detroit {				
Mean	1.19	1.56	0.88	1.12
σ mean	0.451	0.065	0.096	
Mass {				
Mean	0.89	1.34	0.71	0.91
σ mean	0.327	0.156	0.084	
<i>Bright (A and B)</i>				
Mean number	132	141	115	388
Vertical {				
Mean	1.16	1.71	0.96	1.19
σ mean	0.460	0.159	0.101	
Detroit {				
Mean	1.30	1.86	0.99	1.28
σ mean	0.507	0.139	0.169	
Mass {				
Mean	0.85	1.23	0.91	0.97
σ mean	0.466	0.253	0.127	
<i>Average (C+, C, C-)</i>				
Mean number	328	348	262	938
Vertical {				
Mean	0.79	1.46	0.77	0.94
σ mean	0.229	0.139	0.102	
Detroit {				
Mean	1.20	1.48	0.87	1.10
σ mean	0.361	0.087	0.099	
Mass {				
Mean	0.89	1.42	0.68	0.91
σ mean	0.316	0.216	0.096	
<i>Dull (D and E)</i>				
Mean number	73	78	69	220
Vertical {				
Mean	0.77	1.23	0.76	0.87
σ mean	0.226	0.136	0.133	
Detroit {				
Mean	1.03	1.31	0.67	0.92
σ mean	0.399	0.146	0.094	
Mass {				
Mean	0.90	1.13	0.61	0.81
σ mean	0.370	0.186	0.101	

procedure is highly individualized. Children arrange themselves in ever-changing groups and are allowed to work at their own rates and, to a degree, by their own methods. There is no dull uniformity about activities of the class, for each member is moving through the unit as rapidly as he can do so with understanding.

The differentiation attempted in teaching arithmetic in the other plans may be stated as follows: In the vertical plan, pupils were grouped very carefully upon the basis of general ability; the methods and materials were adapted in maximal degree to the distinctive needs of bright, average, and dull pupils; the teaching groups changed but little during the term, and there was a minimum of individual adaptation. In mass instruction, pupils were taught by the same methods and materials for all, and were expected to attain the same standards. The class worked either in one large group or in two groups, which were the same in arithmetic as in other subjects throughout the semester. No special adjustment was attempted either to group or to individual differences.

IV. SUMMARY

The purpose of the portion of the Detroit individualization experiment here reported was to evaluate the relative effectiveness of three levels of adaptation to differences in bright, average, and dull pupils. The vertical plan illustrates considerable adjustment, the typical Detroit plan moderate adjustment, and the mass plan little or no adjustment. Two schools (three in the vertical) used each plan. Data for about 500 pupils in each plan in Grades III through VI are presented. Groups were equated in significant factors. Comparisons were made on the basis of test results and of judgments by participating teachers and outside observers.

The teachers who participated in the vertical plan consistently judge this plan to be superior to the typical Detroit plan in every criterion proposed. The teachers in the mass plan rated their plan higher than the typical Detroit procedure in some criteria and lower in others. On the average, they rate it about the same as the typical Detroit plan. The evidence here corroborates the usual findings that teachers like ability grouping and believe it to be effective.

The judgment by the outside observers who inspected the three plans (and the three other plans not discussed here) was less favorable to marked ability grouping as illustrated by the vertical plan, although they rated it above mass instruction. The typical Detroit plan

was ranked second, the vertical fifth, and the mass sixth among the six plans.

The test results in reading indicate a superiority for the vertical plan of about 20 percent over typical Detroit and a still greater superiority over mass instruction. In arithmetic, the test results show largest mean gains for the typical Detroit procedure, next largest for the vertical plan, and smallest gains for mass instruction. The superiority for the Detroit plan over the vertical plan is about 14 percent.

When the test data are arranged by bright, average, and dull groups, the findings are similar. For all three levels, the vertical plan leads in reading and the Detroit plan in arithmetic. The teachers participating in the vertical plan, however, are very sure their plan is more appropriate for X's, Y's, and Z's than is the typical Detroit procedure. Teachers in the mass instruction plan do not consider it appropriate for X's, but judge it to be more appropriate for Y's and Z's than is the typical Detroit plan. The outside observers who served as judges of all six experimental plans assigned the lowest average rank to the mass instruction plan, the next lowest rank to the vertical plan, and the third lowest rank to the Detroit plan in adaptation to bright children. These same observers, in judging the degree of adaptation to dull children, ranked mass instruction lowest again, the Detroit plan highest, and the vertical plan second highest.

In brief, then, teachers who use the vertical plan (a considerable degree of adjustment to group differences) are well pleased with it; outside observers rate the plan fifth among the six procedures that were studied experimentally; as judged by test results, the vertical plan is superior to the Detroit and mass instruction plans in reading, but is inferior to the Detroit plan in arithmetic. However, each of the plans that call for ability grouping, whether normal grouping within the grade or extreme vertical grouping, seems to produce more satisfactory results than does mass instruction.

CHAPTER XV

EFFECTS OF ABILITY GROUPING DETERMINABLE FROM PUBLISHED STUDIES

ETHEL L. CORNELL

Research Associate, Educational Research Division
State Education Department, Albany, New York

I. INTRODUCTION

There have already been several critical reviews of the literature on ability grouping that have evaluated results.¹ Those by Turney, Rankin, and Billett are very comprehensive. A searching analysis and critical review has also been made by Wyndham. A general review of results would therefore be a duplication of what has already been done. The purpose of this section is rather to attempt to discover the reasons for, or the conditions under which, conflicting results have been obtained. Although experimental studies have not settled the controversy over ability grouping, they have marked considerable progress in

¹ Roy O. Billett. *The Administration and Supervision of Homogeneous Grouping* (Ohio State University Studies, Contributions in School Administration, No. 4, 1932), also *Provisions for Individual Differences, Marking and Promotion*. U. S. Office of Education, Bulletin, 1932, No. 17. (National Survey of Secondary Education, Monograph No. 13.)

Harl R. Douglass. "Certain aspects of the problem of where we stand with reference to the practicability of grouping." *Journal of Educational Research*, 26: Jan., 1933, 344-353.

Edward A. Lincoln. "Ability grouping in theory and practice." *School and Society*, 30: Oct. 5, 1929, 447-453.

Paul R. Pierce. "Homogeneous grouping." In Chapter III, "Internal Organization of School Divisions," of *Review of Educational Research*, Vol. IV, No. 4: Oct. 1934, 382-389.

Paul T. Rankin. "Pupil classification and grouping." Chapter III of *Review of Educational Research*, Vol. I, No. 3: June, 1931.

Austin H. Turney. "The status of ability grouping." *Educ. Admin. and Super.*, 17: Jan. and Feb., 1931, 21-42, 110-127.

Paul West. *A Study of Ability Grouping in the Elementary School* (Teachers College, Columbia University, Contributions to Education, No. 588, 1933, 70 p.).

Harold S. Wyndham. *Ability Grouping* (Melbourne: Melbourne University, Educational Research Series, No. 31, 1934).

clarifying problems, in making possible the development of working hypotheses, and in leading to better recognition and control of significant conditioning factors.

II. FACTORS INFLUENCING EVALUATION OF RESULTS

1. Reasons for Conflicting Results

A review of the objective results of ability grouping leaves one convinced that we have not yet attained any unequivocal experimental results that are capable of wide generalization. As Wyndham says: "The first general impression one gains from these studies is that . . . they raise more issues than they settle."¹ The reasons for this seem to be:

(1) We can evaluate such results as can be measured only in the light of the conditions and purposes of the particular experiment. These vary so greatly that results are obviously not comparable. For example, in one experiment with first-grade grouping,² among the good effects reported were the following: individual needs were better met; teachers gained clearer vision of the work before them; bright pupils made more rapid progress than in ungrouped sections. In another experiment in first-grade grouping³ the conclusion was reached that children of similar I.Q. levels made more progress in heterogeneous sections than in grouped classes, and that teachers of heterogeneous groups developed better techniques for dealing with individual differences than did teachers of segregated groups. It seems probable that conflicting conclusions like these must be explained, at least in part, by the general teaching conditions under which such experiments were undertaken.

(2) Many of the alleged desirable or undesirable results are either not susceptible of measurement or are so difficult to measure that an experimental attack has not been made upon them. Changes in attitude, in social adjustment, in interest, are important but difficult to determine. Certain of these effects have been reported as 'observations,' but in those instances in which the observations of competent observers conflict, no claim can be made that they are free from the bias of the observer, or that instances of observation can be generalized.

¹ Harold S. Wyndham. *Op. cit.*, p. 156.

² C. S. Berry. "The classification by tests of intelligence of ten thousand first-grade children." *Journal of Educational Research*, 6: 1922, 185-203.

³ Hugh S. Bonar. "Segregation of 'ability groups' and achievement on the first-grade level." *Educational Methods*, 11: June, 1932, 531-536.

The reaction of slow pupils in ungrouped classes has been observed by competent observers who disagree. For example, Billett's observations in classrooms revealed to him that in segregated sections, slow pupils, when given time, could think through answers to questions they themselves raised, while in heterogeneous sections he found noticeably less effort to do so—his interpretation being that the greater speed at which bright pupils arrived at the solution discouraged the slow pupils and made them passively accept the opinions of others.¹ Keliher observed in ungrouped classes for evidences of initiative and found children in the lowest 30 percent on intelligence rating as likely to be in the upper 30 percent in volunteering as to fall in the lower 50 percent.² (These classes, however, were examples of good 'progressive' procedures.) She concluded that heterogeneous sections need not suppress the slow child.

(3) In the practical exigencies of administration and teaching it is virtually impossible to maintain a situation in which all factors except the experimental one are under control for a sufficient length of time to determine the complete or permanent effects of the experimental factor, especially such a factor as the grouping of pupils. In Purdom's experiment, administrative difficulties interfered with the ability groups he segregated to the extent of having several pupils in each group who were misfits.³

(4) If the most important effects of grouping are changes in habits of thinking, work habits, and social attitudes, then we have not yet even begun to measure results objectively. No controlled objective results of this kind have been reported, and no controlled experiment has lasted more than a year (most of them less than that), which is probably not long enough to determine whether changes in attitude have become effective.

(5) In many instances the tests in use to measure changes in achievement over periods of one semester or a year are inadequate for such purpose because the probable error of a score is frequently greater than the normal difference in scores for the interval. Statistical ma-

¹ Roy O. Billett. *The Administration and Supervision of Homogeneous Grouping*. *Loc. cit.*, see the first footnote of this chapter.

² Alice V. Keliher. *A Critical Study of Homogeneous Grouping with a Critique of Measurement as the Basis for Classification* (Teachers College, Columbia University. Contributions to Education, No. 452, 1931).

³ T. Luther Purdom. *The Value of Homogeneous Grouping* (Baltimore: Warwick & York, 1929).

nipulation cannot overcome this defect. Informal objective tests constructed to cover specific subject matter may be more valid measures of specific outcomes than standardized tests. However, they have rarely been used, and the necessary data for determination of their validity have not been available.

(6) There seem to have been, even from the earliest attempts at a better classification of pupils, two conflicting ideas regarding the objectives of democratic education. This conflict is still evident, both in the studies undertaken to evaluate ability grouping and in the more theoretical discussions and critiques. One theory is that a democratic education should offer the same educational content to all. The scientific knowledge of the extent of individual differences has affected the traditional grade organization based upon this theory to the extent of modifying the speed and the method and the variety of illustrative materials of instruction, without questioning the basic assumption of one set of minimal essentials for all. The other theory is that education cannot be democratic unless it varies the educational pattern, the content, and the goal, as well as the speed and the method, to fit the varying needs, both present and future, of its pupils. Advocates of the former theory attack classifications based on the latter, on the ground that they create class distinctions that are contrary to democratic ideals. Advocates of the latter point to our present lack of social leadership in places where it should be expected, to the general sloppiness of thinking of the average adult, to our tendency to follow demagogues and super-salesmen, as the consequences of a theory that one educational goal can serve democratic interests. The failure to recognize these conflicting convictions about the relation of individual differences to democratic ideals and to educational purposes has led to much of the difficulty of evaluating the results of ability grouping. When ability grouping has been undertaken against the background of the first theory, it has been defined and conceived as a refinement of grading.¹ When it has been undertaken against the background of the second theory, it has been conceived as a new type of organization and classification of pupils, cutting across and supplanting, rather than supplementing, the traditional grade system.² Since both theories are com-

¹ Rankin (*loc. cit.*, p. 200) defines ability grouping as "a further step beyond grade classification toward complete individualization of instruction."

² Coxe defines it as "an attempt at a new kind of classification rather than a refinement of the traditional classification" (W. W. Coxe. "Our homogeneous-ability grouping confusion." *Jour. Educ. Research*, 25: Jan., 1932, p. 2).

patible with attention to the individual and the development of the 'whole child,' the underlying differences of objective often do not become explicit. Objective studies dealing with 'homogeneous' sections of otherwise heterogeneous grades can be evaluated against the goal of one set of minimal essentials for all, but they do not afford any basis for evaluating ability grouping that is undertaken with the objective of multiple goals. Most of the controlled experiments in ability grouping have dealt with sections of the usual grades, without an analysis of the composition of the grade.

2. Results Dependent Both on Treatment of Segregated Groups and on Bases of Classification

The results of ability grouping cannot be evaluated apart from a consideration of the conditions under which groups are formed and of the differentiation in the treatment of different groups. When these factors are not controlled or not clearly reported, it is impossible to evaluate the results. Apparently some studies have been undertaken, with an experimental, controlled set-up, to measure differences between the achievement of homogeneous and heterogeneous groups, definitely attempting to exclude any change in course or method, in order to measure the effect of the grouping factor solely. This seems to be a misconception of the purpose of grouping and reminds one of the studies of class-size in which teaching conditions applicable to the mass instruction of forty pupils were used with groups of twenty, with no advantage to the latter. It ought to be self-evident that if either small classes or grouped classes are to be expected to have any value, the value lies in what can be done by the teacher for individuals in such classes that cannot be done in other classes. Criticisms of ability grouping on the assumption that it excludes attention to individual children seem to be wide of the mark, as has been several times pointed out. Any teacher who cannot recognize the differences among a class with a restricted range of achievement is less likely to recognize the *same degree of difference* among pupils showing a wide range, though the extremes in the wide range may be more easily observed.

Nor can the results be considered apart from the way in which pupils have been grouped. The variety of bases in actual use¹ and the lack of uniformity among schools that practice grouping indicate,

¹ Billett finds sixteen different bases in use in 289 schools, no two using exactly the same combination (Roy O. Billett. *Provisions for Individual Differences, Marking and Promotion*. (See first footnote.)

therefore, that much confusion may result if we attempt to compare results from quite different types of classification.

3. Results of Various Kinds

What kinds of results may ability grouping have? Putting together the advantages and disadvantages claimed for grouping by various surveys of opinion,¹ the effects may be classified as: (1) effects on the pupil; (2) effects on ease or difficulty of the teaching situation; (3) effects on ease or difficulty of administration; and (4) effects on coöperation or antagonism of parents and the community. It will probably be agreed that the effects on the pupil are the most important and in fact, in the long run, are those that will determine the other effects. That is, if grouping brings about desirable changes in children, teachers will find their job easier, the administration will in general run more smoothly, even if it is more complex, and parents will be satisfied. Conversely, it might be argued that the reaction of teachers, of the administration, and of the community are indirect evidence as to whether the effects on pupils are good or bad.

4. Effects on Pupils of Ability Grouping

Because of space limitations, the present discussion will be limited to the effects on pupils. There are a number of possible effects, some of which have been measured, some of which have been reported as impressions of teachers, parents, and pupils themselves, and some of which seem not to have aroused discussion in connection with grouping, although frequently pointed out as characteristic of dull or bright children. The following list is representative, though perhaps not exhaustive:

(1) Effect on academic adjustment (*e.g.*, level of achievement, speed of learning)

¹ Advantages and disadvantages claimed for ability grouping may be found in the following:

Orlie M. Clem and Lydia F. Wroath. "Practices in homogeneous grouping in junior high school." *Educ. Method*, 13: Jan., 1934, 206-210.

H. M. Corning. *After Testing — What?* (Chicago: Scott, Foresman & Co., 1926).

T. V. Goodrich. "Influence of homogeneous grouping on pupil personality." *School Executives Magazine*, 50: Feb., 1931, 259-263, 290.

National Education Association, Department of Superintendence. *Ninth Yearbook*, 1931, Chap. VI, Sec. G., 121-126.

Rankin. See first footnote.

(2) Effect on quality of learning (*e.g.*, permanence, accuracy, transfer, level in relation to ability)

(3) Effect on intellectual traits and habits of thinking (*e.g.*, willingness to find out more, certainty of one's judgment, tolerance of others' opinions, ability to adjust one's knowledge to life situations, to become intellectually integrated)

(4) Effect on social and behavior characteristics (*e.g.*, coöperativeness, social consciousness and responsibility, independence, social tolerance)

(5) Effect on emotional, personality, and character traits of individual

(6) Effect on health of individual

(7) Effect on creative output and interest in creative activity

We have considerable objective evidence on (1) and a little on (2). We have various statements of impressions about (4) and (5). We have occasional references to (3), but practically no evidence, either subjective or objective, on (6) or (7). It is clear that all these effects might be different with different fundamental purposes in grouping, with different bases of grouping, and with different treatment after grouping. It is also clear that they might be different for different levels of ability, for different socio-economic levels, for different types of community, and under different types of previous school organization and curriculum offering.

What then is the evidence?

III. OBJECTIVE EVIDENCE REGARDING THE EFFECTS OF GROUPING ON PUPILS

1. Results Relating to Academic Adjustment and Speed of Learning

Reviewers are generally agreed that the experimental evidence as to the achievement status of pupils under a plan of ability grouping is inconclusive. Boyer¹ emphasized, after long experience with grouping in Philadelphia, that there are always wide fluctuations in results in particular instances, showing that differences in achievement cannot be attributed to the single factor of grouping but may be influenced by other factors. One of the most important of these is the extent to

¹ H. M. Barthelmess and P. A. Boyer. "An evaluation of ability grouping." *Journal of Educational Research*, 26: Dec., 1932, 284-294.

which differentiation of curriculum and method takes place, as Wyndham points out.¹ Turney² concluded in 1931 that a true evaluation must be deferred until we have a more adequate experimental attack.

Billett³ in 1932 again reviewed the experimental evidence and found that most of the experimental studies were uncontrolled experiments, and even the few that were controlled still had uncontrolled factors. Billett's conclusion, from his series of carefully controlled experiments, made with adequate statistical analysis, was that homogeneous grouping, under the conditions of his experiment, was definitely favorable to the achievement of slow groups but doubtful or unfavorable for average and fast groups.⁴ However, Billett's experiments were limited to ninth-grade classes in college-preparatory English. Whatever differentiation of content was made resulted from the teacher's being given freedom to adapt methods to the different groups. While his conclusions, therefore, may have an indirect application to situations in which differentiation in content is definitely planned, they do not apply when rate of progress is differentiated. One of the outstanding difficulties in evaluation, as Turney⁵ pointed out, lies in this matter of differentiation, since the chief claim for ability grouping is the possibility it offers of adapting content or method or time to pupils of different levels; yet the difficulty of determining comparable progress for different programs is so great as to be called an 'experimental *impasse*' by Wyndham.

One of the most consistent results has been the possibility of increased speed in covering a given amount of work on the part of bright children. This has been found to be true at every level from the first grade through college when this has been one of the objectives of the grouping. It has been repeatedly found that bright children (usually defined as having I.Q.'s of 120 or more) can do the usual work of any grade in about half the usual time,⁶ and in general that bright classes can save two or three years in their progress through

¹ Wyndham. See first footnote.

² Turney. See first footnote.

³ Roy O. Billett. *Provisions for Individual Differences, Marking and Promotion*. See first footnote.

⁴ Roy O. Billett. *The Administration and Supervision of Homogeneous Grouping*. See first footnote.

⁵ A. H. Turney. See first footnote.

⁶ T. W. Callihan. "An experiment in the use of intelligence tests as a basis for proper grading and promotions in the eighth grade." *Elem. Sch. Jour.*, 21: Feb., 1921, 465-469.

school and at the same time have an enriched curriculum.¹ In this connection it is interesting to note that more rapid progress seems to be made under this plan of grouping than under the Winnetka plan of individual instruction. Washburne² found a strong tendency for children at every level of ability to make just a year's grade progress in a year. At the college level, Burt et al.³ found that sectioning high groups had an advantage only if they were forced to cover the ground at a more rapid rate than the average.

Reduction in the amount of failure under a system of ability grouping compared with heterogeneous grades has also rather consistently been reported.⁴ It has sometimes been questioned whether the reduction in failure was not due to the lowering of standards. That it can occur without reduction of standards was pointed out by Torgerson⁴ in an experiment in which he showed that while failures were reduced, the average achievement was at the same time raised approximately a half-year.

The most definite experimental attacks, however, have been on achievement in subject matter. In the controlled experiments achievement of pupils in homogeneous groups has been compared with achievement of pupils of equal ability in heterogeneous groups. Unfortunately, however, the very fact of introducing a controlled experiment has tended to put definite limitations upon the adaptation of the cur-

¹ J. R. Benson. "A comparison of selected groups with mixed classes." *Twenty-Third Yearbook of this Society*, Part I, 1924, 290-296.

C. S. Berry. *Loc. cit.*

Laura Frazee. "Suggested solution for some problems of XYZ classification." *Baltimore Bulletin of Education*, June, 1928.

F. L. Hambrick. "A new plan for forming class groups." *Elem. Sch. Jour.*, 34: June, 1934, 749-753.

V. A. Jones and W. A. McCall. "Application of two techniques in evaluating some policies of dealing with bright children." *Teachers College Record*, Part 2, 27: May, 1926, 825-835.

E. D. Price. "A plan of classifying pupils." *Jour. Educ. Research*, 12: Dec., 1925, 341-348.

² C. W. Washburne. "The attainment of gifted children under individual instruction." *Twenty-Third Yearbook of this Society*, Part I, 1924, 247-261.

³ H. E. Burt, L. M. Chassell, and E. M. Hatch. "Efficiency of instruction in unselected sections in elementary psychology compared with that in sections selected on basis of intelligence tests." *Jour. Ed. Psychology*, 14: 1923, 154-161.

⁴ Price. See first footnote.

T. L. Torgerson. "Is classification by mental ages and intelligence quotients worth while?" *Jour. Educ. Research*, 13: March, 1926, 171-180.

riculum to the different groups. It is probable that the varying amounts of adaptation that different teachers spontaneously make is one of the factors that renders the evidence on this point so conflicting. In a tabulation of experimental results, Turney¹ finds fifteen cases of subject gains under homogeneous grouping, four cases of losses, and ten cases that are inconclusive. Gains and losses both are reported for homogeneous grouping in English, geometry, and English history. Gains for homogeneous grouping or inconclusive evidence are reported in reading, total educational achievement, Latin, and algebra.

Results that have been in general unfavorable to ability grouping have been reported by Purdom² and Cook.³ Barthelmess and Boyer⁴ however, found pupils in grouped classes at all levels consistently superior to pupils of the same level in controlled groups. In this study, grouping had already been practiced for a number of years. Billett's⁵ and Rankin's⁶ studies tended to show that ability grouping was advantageous so far as gains in achievement were concerned for slow groups, but that the evidence showed either a disadvantage or no advantage for bright groups. Billett believes this finding to be significant enough to indicate that only slow pupils should be segregated, but in the writer's opinion, this would disregard the evidence of speed and all the unmeasured possibilities of benefit to bright pupils due to radical changes of content. In an experiment with college classes, Ullrich⁷ found that the lecture method produced no advantages for ability-grouped classes over ungrouped classes, but that when the content was enriched, and particularly if the rate of progress was changed, the high section showed a decided advantage.

In all the controlled studies having negative results it is fairly clear that very little adaptation of work was made. The most reasonable

¹ A. H. Turney. See first footnote.

² T. Luther Purdom. See first footnote.

³ R. R. Cook. "A study of the results of homogeneous grouping of abilities in high-school classes." *Twenty-Third Yearbook of this Society*, Part I, 1924, 302-312.

⁴ H. M. Barthelmess and P. A. Boyer. See first footnote.

⁵ Billett. *The Administration and Supervision of Homogeneous Grouping*. See first footnote.

⁶ Rankin. See first footnote.

⁷ Oscar A. Ullrich. *An Experimental Study of the Effect on Learning of Sectioning College Classes on the Basis of Ability*. Austin, Texas. Univ. of Texas, 1926. 55 pp. (Doctor's thesis, reviewed by T. H. Briggs in *Educ. Admin. and Super.*, 14: Jan., 1928, 70.)

conclusion seems to be that of Turney, that when an effort to adapt the means and the materials of instruction to the needs of different levels is definitely made, achievement is better in homogeneous groups than in heterogeneous groups. No one seems yet to have made a definite experimental attack on the effect of different methods of adapting work to different levels of ability. That this is necessary, however, seems to have been the burden of many advocates of ability grouping since interest in this plan of organization was first aroused. Henry¹ pointed it out in the *Nineteenth Yearbook* of this Society in his discussion of gifted children. Buckingham² raised the question in the *Twenty-Fourth Yearbook* as to what degree of individualized attention might give best results.

The importance of the adaptation of teaching was shown by Arthur³ in a suggestive study of first-grade pupils grouped into seven classes. In each class the mental-age group that was modal made better progress in reading than the same mental-age group did in any class in which it was not the mode, which was interpreted to mean that teaching was more effective for any mental level when that level represented the modal group of the class. This brings up the question of the range of achievement found in homogeneous and heterogeneous groups—perhaps the chief question about which controversy has raged since McGaughy⁴ and Burr⁵ pointed out the great amount of overlapping among 'homogeneous' groups. Space forbids considering this question here, but attention may be called to a recent study by West⁶ of 143 ability groups under multiple- and single-track school organization. He showed that the amount of individual adjustment needed because of individual deviation from the group was least in

¹ Theodore S. Henry. "Classroom problems in the education of gifted children." *Nineteenth Yearbook* of this Society, Part II, 1920. (Chap. III, "The experimental room at Urbana.")

² B. R. Buckingham. "The validity of the conclusions from the statistical data" (statistical results of experiments with individualization). *Twenty-Fourth Yearbook* of this Society, Part II, 1925, 216-221.

³ Grace Arthur. "A quantitative study of the results of grouping first-grade classes according to mental age." *Jour. Ed. Research*, 12: Oct., 1925, 173-185.

⁴ J. R. McGaughy. "Homogeneous grouping of pupils." *Childhood Education*, 6: March, 1930, 291-296.

⁵ Marvin B. Burr. *A Study of Homogeneous Grouping in Terms of Individual Variations and the Teaching Problem*. (Teachers College, Columbia University, Contributions to Education, No. 457, 1931.)

⁶ West. See first footnote.

situations that provided the greatest amount of differentiation — that is, where there were three groups to the grade, under a multiple-track plan — and that the variability of the group was likewise least for this type of organization. It is interesting also that the median variation of groups in multiple-track systems having two groups to a grade (but following different curricula) was not much higher than the median variation of single-track systems having three groups to a grade (but following the same curriculum). This suggests that curricular differentiation is more significant in reducing the variability of a group than is the number of sections in a grade.

2. Results Relating to Quality of Learning

It is fairly evident, as Danielson¹ has pointed out, that the usual course of study and methods do not produce the level of accomplishment of which superior pupils are capable. Danielson found that a higher level of achievement was reached by a program of more varied reading, provided definite use was made of the material read. It is a common finding that gifted children in ordinary classes are not achieving up to their ability.²

Most of the evidence concerning the quality of work of pupils in ability groups is subjective. The only definite experimental attack on this particular phase seems to be that of Van Wagenen.³ He found that bright pupils in a segregated class of seventh and eighth grades did not show a higher quality of work than did pupils of the same ability in other types of classes. He showed also that the quality of work of the pupils with higher mental ages tended to be poorer than that of the pupils with lower mental ages, and he suggests that this is due to the fact that in the segregated class no more difficult nor complex work was given but only a greater variety. He says "where such grouping obtains, the problem of handling the different groups may still be unsolved" (p. 245). Whether the poor pupils or the good pupils do a better quality of work in segregated classes is still unsettled. Arthur⁴ and

¹ Cora Lee Danielson. "A study of the effect of a definite course of reading in general literature upon achievement in content subjects with children of superior mental ability." *Jour. Educ. Psychology*, 20: 1929, 610-621.

² Paul A. Witty. *A Study of One Hundred Gifted Children*. (Bulletin of the University of Kansas, Vol. II, No. 7, 1930.)

³ M. J. Van Wagenen. "The effect of homogeneous grouping upon the quality of work of superior children." *Jour. Educ. Method*, 6: Feb., 1927, 240-247.

⁴ Grace Arthur. *Loc. cit.*

Brown and Lind¹ found that the pupils who were below the average of the group in which they were placed did better work than pupils of the same ability when they were above the average of the group. Keener,² however, found just the opposite to be the case and thought that the dull pupil of a group was handicapped by the brighter pupils of that group. None of these studies, however, eliminates the numerous uncontrolled factors and none can therefore be said to be conclusive. Patrick³ found that "under appropriate treatment the gifted child tends to measure up in achievement to the standards set by his mental age." When former pupils themselves responded to a questionnaire as to the effect that grouping had had,⁴ common responses were "learned how to study," "learned I had to study," "brings out your mental caliber."

3. Results Relating to Intellectual Traits and Habits of Work

The effect that grouping has on mental habits has not yet been experimentally studied. Apparently the convictions of the administrators of grouping regarding its desirability, as well as the varying practices existing where grouping is carried on, influence the opinions of those who report on this matter. The conviction is expressed by Benson⁵ that pupils work more steadily in ability groups and find more pleasure in competing with their peers. Branson⁶ found a lower correlation between initial and final tests for the high group than for the low and interpreted this to indicate that while some of the high pupils made their first real effort in grouped classes, others showed less dependability under the necessary routine. Worlton⁷ and Torgerson⁸

¹ A. W. Brown and C. Lind. "School achievement in relation to mental age—a comparative study." *Jour. Educ. Psychology*, 22: Nov., 1931, 561-576.

² E. E. Keener. "Results of homogeneous classification of junior-high-school pupils." *Jour. Educ. Research*, 14: June, 1926, 14-20.

³ Mary L. Patrick. "Some attainments of gifted children in segregated classes at Louisville." *Twenty-Third Yearbook of this Society*, Part I, 1924, 262-274.

⁴ Anna M. Engel. "Comparison of attainments of gifted children in special classes with gifted children in ordinary classes." *Twenty-Third Yearbook of this Society*, Part I, 1924, 297-301.

⁵ J. R. Benson. *Twenty-Third Yearbook of this Society*.

⁶ E. P. Branson. "An experiment in arranging high-school sections on the basis of general ability." *Jour. Educ. Research*, 3: 1921, 53-55.

⁷ J. F. Worlton. "The effect of homogeneous classification on the scholastic achievement of bright pupils." *Elem. Sch. Jour.*, 28: Jan., 1928, 336-345.

⁸ T. L. Torgerson. *Loc. cit.*

found a tendency for bright pupils to work more nearly at their mental level in grouped classes than in ungrouped classes. Berry¹ thought that average and slow groups lost something in incentive by not having to compete with the more capable. A survey of the opinions of principals² disclosed the fact that three-fourths of the principals believed that bright pupils showed at least as much effort in grouped classes as in ungrouped. Frazee³ believes that grouping develops understanding, tolerance, and enables a pupil to get a truer estimate of himself.

4. Results Relating to Social, Emotional, and Personality Adjustment of Pupils

There is practically no evidence on this topic except the opinions of principals, teachers, parents, and occasionally of the children themselves, which have been collected through questionnaires. The number of questionnaires has multiplied very rapidly in the last few years.⁴ We can find opposite opinions on whether grouping stigmatizes pupils, whether it increases the leadership within the different groups, whether the pupils are happier under grouping, whether various habits and attitudes affecting citizenship are improved or otherwise. The burden of evidence is in favor of ability grouping according to the opinions not only of teachers and principals but also of parents and of the children themselves. While there is a majority favorable to ability grouping on almost every item in every study, there is always a minority whose opinion is unfavorable. To some extent, the reaction depends upon the conditions under which grouping is carried out, as Goodrich's analysis⁴ suggested. Sauvain⁴ very interestingly showed how such opinions are influenced by the accuracy with which pupils are classified, by the edu-

¹ C. S. Berry. *Loc. cit.*

² Orlie M. Clem and Lydia F. Wroath. *Loc. cit.*

³ Laura Frazee. "Administrative aspects in meeting differences." *Childhood Educ.*, 5: Oct., 1928, 72-77.

⁴ Orlie M. Clem and Lydia F. Wroath. *Loc. cit.*

T. V. Goodrich. *Loc. cit.*

Edward A. Lincoln and Verna L. Wadleigh. "Teacher opinion on ability grouping." *Jour. Educ. Research*, 21: April, 1930, 277-282.

Walter H. Sauvain. *A Study of the Opinions of Certain Professional and Non-Professional Groups Regarding Homogeneous or Ability Grouping*. (Teachers College, Columbia University, Contributions to Education, No. 596, 1934.)

A. H. Turney and M. F. Hyde. "The attitude of junior high school pupils toward ability grouping." *Sch. Rev.* 39: Oct., 1931, 597-607. Also "What teachers think of ability grouping." *Education*, 52: Sept., 1931, 39-42.

cational philosophy of those responding, by the extent to which the courses of study are differentiated, by the type of community from which the children come, by the extent to which programs for the slow are enriched or limited to minimal essentials, and by some other factors of less interest at this point.

The questions upon which there is least agreement seem to be whether the slow pupil feels inferior because of the grouping and whether the bright pupil is made conceited or snobbish. Regarding the possibility of snobbishness, Ryan and Crecilius¹ say that even supposing that it persistently arises, "to sidestep snob-making situations is but to put off the evil day to a time when it will be a more evil day" (p. 190). Turney and Hyde in a questionnaire to junior-high-school pupils themselves find "small comfort in these data for those emotional critics of ability grouping who lament the bad effects arising from 'stigma'" (*loc. cit.*, p. 602). The great majority of these pupils were happy and satisfied under a system of ability grouping.

The evaluation of the inferiority feelings that may develop among slow pupils is difficult when it is considered that these must be compared with the effect of total failure in the usual grade situation. The effect of failure has been shown in a number of studies, not particularly related to ability grouping, to be very disastrous.² The relation of emotional maladjustments to school failure is also too well known to need further comment.³ A study by Keyes and Whiteside⁴ should be mentioned in this connection, since, though it did not deal with pupils in ability groups, it yields objective evidence that well-adjusted pupils, emotionally, were far superior in mental age and achievement to the poorly adjusted pupils, and when well-adjusted and poorly adjusted were matched as to sex, chronological age, mental age, and I.Q., the well-adjusted were found to be 14 months higher in educational age.

¹ H. H. Ryan and Philipine Crecilius. *Ability Grouping in the Junior High School* (New York, 1927).

² Henry J. Otto. "Pupil failure as an administrative device in elementary education." *Elem. School Jour.*, 34: April, 1934, 576-589.

³ Roy F. Street. "Factors related to maladjustment in school." *Elem. School Jour.*, 34: May, 1934, 676-680.

Marian McBee. "A mental hygiene clinic in a high school." *Men. Hyg.*, 19: April, 1935, 238-280.

⁴ Noel Keyes and G. H. Whiteside. "The relation of nervous-emotional stability to educational achievement." *Jour. Educ. Psy.*, 21: Sept., 1930, 429-441.

5. Results Relating to Health and Creative Interests

Caution as to the need of considering the health of the individual in classification has been frequent but no evidence has been discovered as to whether grouping has any effect on the health of the pupils. In one study¹ it was found that the ability groups were reversed in measures of weight and in tests of physical and motor capacity. Since they were also reversed in chronological age, it was probably the latter factor that was most significant.

There is probably nothing reported on the creative output of children in grouped classes, unless the study of Gray and Hollingworth² be so considered. They showed that in addition to the usual curriculum, gifted groups studied French, biography, the history of civilization, and did extra work in science, mathematics, English, composition, and music without any loss in achievement in the tool subjects compared with gifted pupils in unsegregated classes. These groups, however, were 'special' gifted groups, rather than bright 'ability' groups.

IV. SUMMARY

The results of ability grouping seem to depend less upon the fact of grouping itself than upon the philosophy behind the grouping, the accuracy with which grouping is made for the purposes intended, the differentiations in content, method, and speed, and the technique of the teacher, as well as upon more general environmental influences. Experimental studies have in general been too piecemeal to afford a true evaluation of results, but when attitudes, methods, and curricula are well adapted to further the adjustment of the school to the child, results, both objective and subjective, seem to be favorable to grouping.

¹ Elizabeth T. Sullivan. "Data on ability-grouping from Los Angeles." *Twenty-Fourth Yearbook* of this Society, Part II, 1925, 148-151.

² H. A. Gray and L. S. Hollingworth. "The achievement of gifted children enrolled and not enrolled in special opportunity classes." *Jour. Educ. Research*, 24: Nov., 1931, 255-261.

CHAPTER XVI

SUMMARY AND INTERPRETATIONS

WARREN W. COXE
Director, Educational Research Division
State Education Department, Albany, New York

I. THE PROBLEM

This summary of the contributions of this Yearbook should be read in the light of the conditions under which the Yearbook was prepared. The Committee had about six months to prepare the manuscript. It recognized that the experimental literature had yielded no conclusions that were universally accepted. Lack of time obviously precluded the planning and carrying on of further experimental work. The alternative plan followed was that of evaluating pupil grouping from various points of view; in other words, the Committee sought to take the problem of pupil grouping out of any one field and to look at it from all pertinent angles. This procedure naturally led to several difficulties. A statement of some of these difficulties is thus an essential part of this summary.

1. The Complexity of the Problem

A reading of the chapters of the Yearbook will indicate that pupil grouping impinges on sociology, psychology, philosophy, administration, and curriculum construction. To work out a theory of pupil grouping, due consideration must be given to all of these fields, but such consideration at once brings out points of view so diverse as to make it difficult to relate them or harmonize them one to another — a difficulty that further complicates the presentation and discussion.

2. The Difficulty of Considering the Problem Objectively

Many of the issues involved in pupil grouping or classification relate to concepts concerning which a completely logical treatment is difficult. Grouping oftentimes suggests a caste system, determinism, mass instruction, and other terms that for many persons are charged with excessive emotional tone. Furthermore, many of the practices suggested run counter to traditional ways of thinking and that arouses

immediate prejudice, if not hostility, in some persons. It seems to be difficult, then, to think about the problem of grouping in a calm, logical, objective manner.

3. The Confusion concerning Certain Issues

Confusion arises here, as in other fields of thought, from failure of different persons to use terms in the same sense. Thus 'pupil grouping' sometimes means 'ability grouping,' sometimes 'interest grouping,' sometimes 'grade grouping,' and again, yet other kinds of grouping. Similarly, 'ability grouping' is sometimes used synonymously with 'homogeneous grouping'; whereas at other times the two terms are carefully distinguished. Within the Yearbook two different definitions of ability grouping will be found. When there is so much confusion in regard to the use of the term 'grouping,' it is not surprising that there should be further confusion in regard to many of the issues involved in it.

4. The Difficulty of Deriving a Theory from Any One Field of Thought

One may find in every chapter of this Yearbook evidence of incompleteness, but he may also find in every chapter facts and concepts that will help him build a theory of pupil grouping. Thus Chapter V, dealing with "The Social Group as an Integral Group in Education," helps us see some of the problems of grouping by calling attention to the fact and nature of social groups; but it would be impossible to form pupil groups on the basis of this chapter alone — further consideration of the individual is necessary. In "The Psychological Basis of Grouping" presented in Chapter VI, the situation seems to be reversed. This chapter deals with individual differences and the need of differentiating teaching procedures in order that the individual may develop to his full capacity. Little recognition is given to whether the classification of pupils on this basis can produce a 'group' in the sociological sense, although there is nothing inherent in the suggested procedure to preclude emphasis on social groups. Chapters XI, XII, and XIII deal with the administration of pupil groups; they direct attention to many practices that have been devised to meet actual situations, and they show varying degrees of recognition of the sociological and psychological implications.

In Chapters IV and VII, where "Some Philosophical Aspects of Grouping" and "The Relation of the Newer Educational Practices to

Grouping" are discussed, certain phases of a philosophy of grouping are developed. These chapters criticize some current interpretations and practices of ability grouping, pointing out their inadequacies to meet current social demands upon education. No philosophy has been developed, either here or elsewhere, that takes into consideration other kinds of pupil grouping than that involved in ability grouping. Neither is there any presentation of an educational philosophy that recognizes grouping as a social phenomenon.

II. BASIC ELEMENTS FOR A THEORY OF GROUPING

In spite of the difficulties just described and granting that there are many issues concerning which there may be disagreement, it seems desirable in this summary to pull together those concepts concerning which there is little or no disagreement and to weave them into a tentative statement of the principles underlying grouping. In this statement it is necessary that a broad survey of the varied points of view be kept in mind. More specifically, such a statement must grow out of full recognition of the facts of individual differences and of social organization.

1. The Nature of Groups

The term 'group' is commonly used in two quite different senses — this accounts for some of the confusion previously mentioned. Frequently it is used to denote a classification or aggregation of individuals. When used in this sense, dividing lines between groups are arbitrary. When we segregate pupils represented in a distribution, either of intelligence or achievement scores, we have groups in this sense. Grade groups as we know them traditionally illustrate this differentiation, as do also economic groups. Ability groups, as frequently conceived, belong in this category. A more accurate designation of this type of classification would be 'levels' rather than 'groups.'

The other sense in which 'group' is used may be termed the 'sociological.' In this sense a group has cohesiveness. The individual members belong to the group because it stands for certain objectives, and they find certain satisfaction in belonging to it. This kind of group has an independent existence as a separate entity. It is dynamic in nature. Its life may be long or short. Illustration of such groups will be found in recreational associations, service clubs, women's clubs, school clubs, fraternities, and the like.

2. Kinds of Groups Found in Schools

School groups may be found that illustrate both these types of groups. In general, the type traditionally found in the school is that which may be described as a 'classification group.' It seems inevitable that the school must organize such groups. No argument is necessary to prove that the group handled by a teacher must be relatively homogeneous; that is, it should not include all ages from the five-year-old to the eighteen-year-old and all levels of achievement from kindergarten to high-school senior. The necessity of reducing this heterogeneity plunges us immediately into the problems of grouping. One objective of grouping, considered from a broad point of view, is to make these arbitrary groups into sociological groups that will thus have, so far as possible, cohesiveness and dynamic purpose. The formation and organization of pupil groups in the sociological sense cannot be left wholly to pupil initiative. However, opportunity should be allowed for the organization of voluntary pupil groups whenever definite educational ends are served by their organization. Our best schools have always developed group cohesiveness — this is what is meant by morale. One of the characteristics of a good teacher has always been the ability to get her whole class acting together as a unit.

Inasmuch as it seems necessary to plan groupings in the school and not to leave the formation of such groups wholly to individual choice, we must have some guide to help us in deciding upon the groups that shall be organized. We are beginning to realize that the development of personality and of character is often facilitated to some extent by membership in groups that possess sociological characteristics. These groups need not necessarily be the same social groups as are found in adult society, but should be formed upon the principles on which social groups are formed.

3. The Selective Function of the School

The concept of the school as a selective agency has not been developed anywhere within the Yearbook. Nevertheless, because of its possible bearing upon this discussion, it seems necessary at least to call attention to the issues it presents.

Schools have traditionally functioned as selective agencies, selecting pupils for further training and frequently for industrial and commercial positions. In the past the selection has been commonly related to the number of grades a pupil completed satisfactorily. With the

growth of compulsory attendance and the reduction of retardation, the number of grades completed has lost its significance, so that selection for further training or for employment must be made on some other basis.

From the standpoint of society there is need for a selective agency. To do the work that society must have done, there must be a selection of those individuals best qualified to do it. Furthermore, the individual is in need of guidance into those fields of work that he can perform with satisfaction.

In considering the bases on which groups shall be formed, the selective function of a school must be given consideration, not in the sense of prediction, because groupings are fluid and not fixed, but in the sense of helping pupils make decisions by giving them complete information. This raises the further question of curriculum differentiation, not so much to meet individual needs as to give training appropriate to the level or type of work the individual will later undertake.

4. The Relation of Grouping to Optimal Individual Development

The contributions of research studies tend to give some evidence that, at least in traditional subject matter, pupils make more development under a system of ability grouping than under other systems of grouping. There is need for much more research, aimed not only at evaluating ability grouping as such but also at the nature of the gains that will accrue from other kinds of grouping.

The growth of personality and character depends in large part upon the individual's feeling that he has a place in sociological groups. Our effort to develop the 'whole child' will not be accomplished unless we succeed in establishing significantly educative group contacts. While the organization of voluntary groups on the part of pupils certainly may well be encouraged, we are not fulfilling our obligation as educators if we rely wholly upon such groupings. As was previously indicated, most groups under the guidance of the teacher can be made sociological groups. Optimal child development will be assured only as all groups take on such characteristics.

The trend of the argument in this Yearbook, so far as this matter has been discussed, is that much higher achievement may be expected when pupils are properly grouped. The highest intellectual development can take place only when pupils are placed in such situations as will challenge their full capacity. A group that will do this may be con-

sidered a 'sociological' group just as much as a voluntary school club interested in photography. Traditionally, academic achievement has been the primary responsibility of the school, and we have been inclined to think of grouping as a method primarily of realizing this objective. In the preceding discussion emphasis has been placed upon other reasons for grouping, mainly because these other functions of the school have so greatly expanded in recent years.

It seems to follow that there must be subject-matter differentiation for different levels. To attain highest individual development through grouping, the subject matter, the activities, and the purposes must be appropriate to the mental or ability level of the group. If we think of personality and character development through varied group membership, here again each of the groups must have its distinctive characteristics in order to furnish the varied situations necessary for such development.

III. ADMINISTRATION OF ABILITY GROUPING

1. Groups to Be Organized

In various chapters throughout the Yearbook reference has been made to the necessity of organizing several kinds of pupil groups. Particular mention of a number of these groups has been made by Dr. Billett in Chapter XII.

a. The School Group. The character of this group will depend upon the social and economic status of the community in which the school is located. In large cities these school groups will differ markedly from one another, greater differences being manifested between individual elementary schools than between individual high schools. High-school groups will be similar to each other to the extent that the high schools are cosmopolitan. In a school system where special high schools exist, greater differences will be manifested than where the cosmopolitan high school exists. The nature of these groups will help to determine the content of the curriculum, the school activities, and the type of teacher to be employed.

b. The Grade Group. Reference to the grade group in this Yearbook has been confined largely to the statement that the grade was coming to mean a chronological age level, owing to the efforts in recent years to reduce failure and retardation. It is obvious, however, from tables presented by Dr. Boyer in Chapter XI that there is still a wide range of chronological age in the grades of some school systems. It

must be recognized that when a grade means a chronological age level, there will be a wide range of ability and achievement.

c. The Home Room Group. Such groups are found almost entirely in secondary schools. Oftentimes they are guidance or supervisory groups. Apparently there is no agreement as to the most desirable composition of such groups. Dr. Billett indicates several bases on which they are sometimes formed. Their composition will naturally depend upon their purpose.

d. The Class Group. For administrative purposes it seems best to consider a class group as the group that works together upon the same subject matter. There may, therefore, be one or more such class groups under one teacher. The material presented in this Yearbook would suggest that the membership in the class group be determined on an ability basis. In this respect the class group is in marked contrast to most other groups in the school, in that the other groups may include pupils of varying abilities, varying interests, and varying grade location.

e. Clubs and Extracurricular Groups. Membership in such groups will naturally depend upon special ability and interest. The membership may, or may not, exhibit a wide range of general ability. Under this heading also might be listed athletic teams, where again the basis for membership is special ability and interest.

f. Informal or Temporary Groups. Within every well-taught classroom, occasion will arise for the organization of temporary groups for special purposes. It may be that special coaching may be necessary to overcome some subject deficiency; it may be that a classroom project is undertaken by a small group of pupils. Such groupings, however, are temporary, exist during the period of necessity, and are organized as need arises.

2. The Basis of Ability Grouping

Most of the material presented in the Yearbook concerning the practical administration of educational units has dealt with ability grouping as one of the most important types of pupil grouping to be considered. Our discussion in what follows will be confined accordingly to the administrative aspects of ability grouping.

There is fair agreement that ability groups should be formed on the basis of the best available measures of mental ability. Both Turney and Boyer and many of the administrators reported by Connor prefer to use the intelligence quotient in combination with either mental age

or chronological age. When grouping is confined to the limits of a grade, it is obvious that the problem is complicated somewhat by the range of chronological age in a grade.

Other factors as a basis of grouping have been discussed, but there has been general agreement that they must be considered by the teacher in adapting work to individual needs rather than as a basis for forming primary groups. In individual instances these other factors may be given considerable weight, particularly when a pupil is evidently a misfit in the group to which he is assigned on the basis of mental ability. The figures presented by Dr. Turney and by Dr. Boyer show helpful ways of tabulating intelligence quotients and either mental age or chronological age preliminary to the formation of groups.

Both Dr. Boyer and Dr. Billett emphasize the need of keeping adequate, permanent, pupil-record cards. This naturally follows when the aim of ability grouping is that of giving more adequate attention to individual pupil development. These record cards not only help in the formation of ability groups but also aid the teacher in making further adaptations to individual needs.

3. Adaptation of the Curriculum

Several procedures have been used in adapting curricular materials to ability groups. Sometimes separate courses of study have been prepared for groups representing different ability levels. Sometimes a single course of study, with suggestions for modification, has been employed. At other times there has been the assumption that an activity program using project units will automatically care for the needs of different levels of ability without reference to differentiated groups. On the whole, practice to date has not indicated any thorough-going differentiations for different ability levels. The tendency has been to leave adaptations to teacher initiative. Dr. Baker, however, in Chapter VIII has described the mental characteristics of pupils in three different ability levels (the upper 20 percent, middle 60 percent, and lower 20 percent). He also has indicated how these characteristics should influence curricular construction for the three levels of ability. Such an analysis can be applied only in a general way when other criteria for differentiating groups than those mentioned by Dr. Baker are used. The preparation of curricular aids for teachers of ability groups will be facilitated if the range of abilities for which these aids are intended is defined. The preparation of such aids should have

the effect of releasing the teacher from rigid grade requirements and permit greater attention to different individual needs within any group.

In the secondary school certain subjects and curricula tend to attract certain ability levels, in which case curricular differentiation of the kind just mentioned for the elementary school is less often necessary. In required subjects, such as English, the social studies, and mathematics, as Dr. Hopkins points out, there is a tendency to modify content for different levels of ability.

4. Pupil Marks

The construction of a marking system for different ability levels is beset with many difficulties. Dr. Boyer describes a system of letter grades in which an *A* stands for outstanding achievement with reference to average performance of all pupils of a given grade throughout the school system; a *B* for achievement that is satisfactory for the individual concerned without reference to grade standards; and a *C* for achievement that is not up to the level of achievement of which the individual is capable. A *C* is practically equivalent to a failing mark. In some school systems the same marks are used for all ability groups, but are accompanied by subscripts that indicate the ability level.

5. Class Size

The general tendency, so far as the Committee was able to obtain data, is to enroll 25 pupils in slow classes, 35 in average classes, and 40 in bright classes. These sizes are considered more or less ideal. Conditions have forced schools to depart from these standards and to increase the size of class. Other administrators make the average, rather than the bright, the largest group. These figures refer primarily to the elementary school; in the high school the average size for different ability levels is less.

6. Size of School

The enrollment of the school in which ability grouping is organized will naturally determine the type of organization employed. In some large schools, one teacher may have but one ability group. This can be done even with a system of semi-annual promotion. In smaller schools various adjustments must be employed. The elimination of the semi-annual promotion sometimes facilitates ability grouping organization because the number of grade sections that must be provided for is

greatly reduced. Another type of adjustment is that of placing in the same room under one teacher two, or even three, ability groups. Dr. Baker has pointed out how this may be done most advantageously. It is generally inadvisable to have all ability levels in the same room, even though they may be handled in separate classes. A room may contain either slow and average groups or bright and average groups, or it may contain slow groups or bright groups from two different grades. The data presented by Dr. Baker show that the slow groups of two adjacent grades are more nearly alike than either group is like the average group of the same grade. It should be obvious that ability grouping must be greatly modified for the smallest elementary and secondary schools. Differentiated assignments sometimes offer an alternative to grouping.

7. Teacher Attitudes

The success of an organization by ability groups depends very largely upon the attitude of the teachers — a matter that merits careful attention on the part of the administrator, because the principles underlying such an organization seem to differ radically from those underlying our traditional school organization under which most of the present teachers have been brought up. There must be ample opportunity for discussion of the new plan of organization before it is initiated and also for discussion of difficulties that arise after it is put into operation.

Experience shows that some, but by no means most, teachers dislike ability grouping. Generally the reasons for the dislike can be discovered and eliminated; for example, it is inevitable that the teacher will develop an antagonistic attitude toward ability grouping if she is given a group of slow pupils and no help in adjusting the curriculum to their needs, particularly since with no curricular adjustments other teachers can get standard results from bright groups with little or no effort. Administrative practice should be developed like the one described by Dr. Boyer (group and individual standards of achievement upon which pupil performance can be judged in relation to the measured capacities of the groups and of the individuals composing them).

8. The Dynamic Nature of Organization

In the administration of ability grouping, as in all school administration, organization should aim at pupil welfare rather than ease of administration. There appears to be some reason to believe that for-

merly organization was planned to facilitate administration. It was not recognized, as it is to-day, that organization itself is a dynamic educative force that has a definite influence upon pupils. There should be no distinction between grouping for purposes of administration and grouping for effective learning.

INFORMATION CONCERNING THE NATIONAL SOCIETY FOR
THE STUDY OF EDUCATION

1. **PURPOSE.** The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of yearbooks.

2. **ELIGIBILITY TO MEMBERSHIP.** Any person who is interested in receiving its publications may become a member by sending to the Secretary-Treasurer information concerning name, title, and address, and a check for \$3.50 (see Item 5). Membership may not be had by libraries, schools, or other institutions.

3. **PERIOD OF MEMBERSHIP.** Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31, unless the dues for the ensuing year are paid as indicated in Item 6.

4. **DUTIES AND PRIVILEGES OF MEMBERS.** Members pay dues of \$2.50 annually, receive a cloth-bound copy of each publication, are entitled to vote, to participate in discussion, and (under certain conditions) to hold office. The names of members are printed in the yearbooks.

5. **ENTRANCE FEE.** New members are required the first year to pay, in addition to the dues, an entrance fee of one dollar.

6. **PAYMENT OF DUES.** Statements of dues are rendered in October or November for the following calendar year. Any member so notified whose dues remain unpaid on January 1, thereby loses his membership and can be reinstated only by paying a reinstatement fee of fifty cents, levied to cover the actual clerical cost involved.

School warrants and vouchers from institutions must be accompanied by definite information concerning the name and address of the person for whom membership fee is being paid. Statements of dues are rendered on our own form only. The Secretary's office cannot undertake to fill out special invoice forms of any sort or to affix notary's affidavit to statements or receipts.

Cancelled checks serve as receipts. Members desiring an additional receipt must enclose a stamped and addressed envelope therefor.

7. **DISTRIBUTION OF YEARBOOKS TO MEMBERS.** The yearbooks, ready prior to each February meeting, will be mailed from the office of the publishers, only to members whose dues for that year have been paid. Members who desire yearbooks prior to the current year must purchase them directly from the publishers (see Item 8).

8. **COMMERCIAL SALES.** The distribution of all yearbooks prior to the current year, and also of those of the current year not regularly mailed to members in exchange for their dues, is in the hands of the publishers, not of the Secretary. For such commercial sales, communicate directly with the Public School Publishing Company, Bloomington, Illinois, which will gladly send a price list covering all the publications of this Society and of its predecessor, the National Herbart Society. This list is also printed in the yearbook.

9. **YEARBOOKS.** The yearbooks are issued about one month before the February meeting. They comprise from 600 to 800 pages annually. Unusual effort has been made to make them, on the one hand, of immediate practical value, and on the other hand, representative of sound scholarship and scientific investigation. Many of them are the fruit of coöperative work by committees of the Society.

10. **MEETINGS.** The annual meeting, at which the yearbooks are discussed, is held in February at the same time and place as the meeting of the Department of Superintendence of the National Education Association.

Applications for membership will be handled promptly at any time on receipt of name and address, together with check for \$3.50 (or \$3.00 for reinstatement). Generally speaking, applications entitle the new member to the yearbook slated for discussion during the calendar year the application is made, but those received in December are regarded as pertaining to the next calendar year.

GUY M. WHIPPLE, Secretary-Treasurer.

Box 822, Clifton, Mass.

PUBLICATIONS OF THE NATIONAL HERBART SOCIETY

(Now the National Society for the Study of Education)

	Postpaid Price
First Yearbook, 1895	\$0.79
First Supplement to First Yearbook .....	.28
Second Supplement to First Yearbook .....	.27
Second Yearbook, 1896 .....	.85
Supplement to Second Yearbook .....	.27
Third Yearbook, 1897 .....	.85
<i>Ethical Principles Underlying Education.</i> John Dewey. Reprinted from Third Yearbook	.27
Supplement to Third Yearbook .....	.27
Fourth Yearbook, 1898 .....	.79
Supplement to Fourth Yearbook .....	.28
Fifth Yearbook, 1899 .....	.79
Supplement to Fifth Yearbook .....	.54

PUBLICATIONS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

	Postpaid Price
First Yearbook, 1902, Part I— <i>Some Principles in the Teaching of History.</i> Lucy M. Salmon	\$0.54
First Yearbook, 1902, Part II— <i>The Progress of Geography in the Schools.</i> W. M. Davis and H. M. Wilson .....	.53
Second Yearbook, 1903, Part I— <i>The Course of Study in History in the Common School.</i> Isabel Lawrence, C. A. McMurry, Frank McMurry, E. C. Page, and E. J. Rice .....	.53
Second Yearbook, 1903, Part II— <i>The Relation of Theory to Practice in Education.</i> M. J. Holmes, J. A. Keith, and Levi Seeley .....	.53
Third Yearbook, 1904, Part I— <i>The Relation of Theory to Practice in the Education of Teachers.</i> John Dewey, Sarah C. Brooks, F. M. McMurry, et al .....	.53
Third Yearbook, 1904, Part II— <i>Nature Study.</i> W. S. Jackman .....	.85
Fourth Yearbook, 1905, Part I— <i>The Education and Training of Secondary Teachers.</i> E. C. Elliott, E. G. Dexter, M. J. Holmes, et al .....	.85
Fourth Yearbook, 1905, Part II— <i>The Place of Vocational Subjects in the High-School Curriculum.</i> J. S. Brown, G. B. Morrison, and Ellen H. Richards .....	.53
Fifth Yearbook, 1906, Part I— <i>On the Teaching of English in Elementary and High Schools.</i> G. P. Brown and Emerson Davis .....	.53
Fifth Yearbook, 1906, Part II— <i>The Certification of Teachers.</i> E. P. Cubberley .....	.64
Sixth Yearbook, 1907, Part I— <i>Vocational Studies for College Entrance.</i> C. A. Herrick, H. W. Holmes, T. deLaguna, V. Prettyman, and W. J. S. Bryan .....	.70
Sixth Yearbook, 1907, Part II— <i>The Kindergarten and Its Relation to Elementary Education.</i> Ada Van Stone Harris, E. A. Kirkpatrick, Maria Kraus-Boelté, Patty S. Hill, Harriette M. Mills, and Nina Vandewalker .....	.70
Seventh Yearbook, 1908, Part I— <i>The Relation of Superintendents and Principals to the Training and Professional Improvement of Their Teachers.</i> Charles D. Lowry .....	.78
Seventh Yearbook, 1908, Part II— <i>The Co-ordination of the Kindergarten and the Elementary School.</i> B. J. Gregory, Jennie B. Merrill, Bertha Payne, and Margaret Giddings .....	.78
Eighth Yearbook, 1909, Parts I and II— <i>Education with Reference to Sex.</i> C. R. Henderson and Helen C. Putnam. Both parts	1.60
Ninth Yearbook, 1910, Part I— <i>Health and Education.</i> T. D. Wood .....	.85
Ninth Yearbook, 1910, Part II— <i>The Nurse in Education.</i> T. D. Wood, et al .....	.78
Tenth Yearbook, 1911, Part I— <i>The City School as a Community Center.</i> H. C. Leipziger, Sarah E. Hyre, R. D. Warden, C. Ward Crampton, E. W. Stitt, E. J. Ward, Mrs. E. C. Grice, and C. A. Perry .....	.78
Tenth Yearbook, 1911, Part II— <i>The Rural School as a Community Center.</i> B. H. Crocheron, Jessie Field, F. W. Howe, E. C. Bishop, A. B. Graham, O. J. Kern, M. T. Scudder, and B. M. Davis .....	.79
Price for Yearbooks VI to X inclusive, 8 vo. cloth	5.00
Eleventh Yearbook, 1912, Part I— <i>Industrial Education: Typical Experiments Described and Interpreted.</i> J. F. Barker, M. Bloomfield, B. W. Johnson, P. Johnson, L. M. Leavitt, G. A. Mirick, M. W. Murray, C. F. Perry, A. L. Safford, and H. B. Wilson .....	.85
Eleventh Yearbook, 1912, Part II— <i>Agricultural Education in Secondary Schools.</i> A. C. Monahan, R. W. Stimson, D. J. Crosby, W. H. French, H. F. Button, F. R. Crane, W. R. Hart, and G. F. Warren .....	.85

Twelfth Yearbook, 1913, Part I— <i>The Supervision of City Schools</i> . Franklin Bobbitt, J. W. Hall, and J. D. Wolcott .....	.85
Twelfth Yearbook, 1913, Part II— <i>The Supervision of Rural Schools</i> . A. C. Monahan, L. J. Hanifan, J. E. Warren, Wallace Lund, U. J. Hoffman, A. S. Cook, E. M. Rapp, Jackson Davis, and J. D. Wolcott .....	.85
Thirteenth Yearbook, 1914, Part I— <i>Some Aspects of High-School Instruction and Administration</i> . H. C. Morrison, E. R. Breslich, W. A. Jessup, and L. D. Coffman .....	.85
Thirteenth Yearbook, 1914, Part II— <i>Plans for Organizing School Surveys, with a Summary of Typical School Surveys</i> . Charles H. Judd and Henry L. Smith .....	.79
Fourteenth Yearbook, 1915, Part I— <i>Minimum Essentials in Elementary School Subjects—Standards and Current Practices</i> . H. B. Wilson, H. W. Holmes, F. E. Thompson, R. G. Jones, S. A. Curtis, W. S. Gray, F. N. Freeman, H. C. Pryor, J. F. Hosie, W. A. Jessup, and W. C. Bagley .....	.85
Fourteenth Yearbook, 1915, Part II— <i>Methods for Measuring Teachers' Efficiency</i> . Arthur C. Boyce .....	.79
Fifteenth Yearbook, 1916, Part I— <i>Standards and Tests for the Measurement of the Efficiency of Schools and School Systems</i> . G. D. Strayer, Bird T. Baldwin, B. R. Buckingham, F. W. Ballou, D. C. Bliss, H. G. Childs, S. A. Curtis, E. P. Cumberley, C. H. Judd, George Melcher, E. E. Oberholtzer, J. B. Sears, Daniel Starch, M. R. Trabue, and G. M. Whipple .....	.85
Fifteenth Yearbook, 1916, Part II— <i>The Relationship between Persistence in School and Home Conditions</i> . Charles E. Holley .....	.87
Fifteenth Yearbook, 1916, Part III— <i>The Junior High School</i> . Aubrey A. Douglass .....	.85
Sixteenth Yearbook, 1917, Part I— <i>Second Report of the Committee on Minimum Essentials in Elementary-School Subjects</i> . W. C. Bagley, W. W. Charters, F. N. Freeman, W. S. Gray, Ernest Horn, J. H. Hoskinson, W. S. Monroe, C. F. Munson, H. C. Pryor, L. W. Raper, G. M. Wilson, and H. B. Wilson	1.00
Sixteenth Yearbook, 1917, Part II— <i>The Efficiency of College Students as Conditioned by Age at Entrance and Size of High School</i> . B. F. Pittenger .....	.85
Seventeenth Yearbook, 1918, Part I— <i>Third Report of the Committee on Economy of Time in Education</i> . W. C. Bagley, B. B. Bassett, M. E. Branom, Alice Camerer, J. E. Dealey, C. A. Ellwood, E. B. Greene, A. B. Hart, J. F. Hosie, E. T. Housh, W. H. Mace, L. R. Marston, H. C. McKown, H. E. Mitchell, W. C. Reavis, D. Snedden, and H. B. Wilson .....	.85
Seventeenth Yearbook, 1918, Part II— <i>The Measurement of Educational Products</i> . E. J. Ashbaugh, W. A. Averill, L. P. Ayers, F. W. Ballou, Edna Bryner, B. R. Buckingham, S. A. Curtis, M. E. Haggerty, C. H. Judd, George Melcher, W. S. Monroe, E. A. Nifenecker, and E. L. Thorndike	1.00
Eighteenth Yearbook, 1919, Part I— <i>The Professional Preparation of High-School Teachers</i> . G. N. Cade, S. S. Colvin, Charles Fordyce, H. H. Foster, T. W. Gosling, W. S. Gray, L. V. Koos, A. R. Mead, E. L. Miller, F. C. Whitcomb, and Clifford Woody	1.85
Eighteenth Yearbook, 1919, Part II— <i>Fourth Report of Committee on Economy of Time in Education</i> . F. C. Ayer, F. N. Freeman, W. S. Gray, Ernest Horn, W. S. Monroe, and C. E. Seashore	1.10
Nineteenth Yearbook, 1920, Part I— <i>New Materials of Instruction</i> . Prepared by the Society's Committee on Materials of Instruction	1.10
Nineteenth Yearbook, 1920, Part II— <i>Classroom Problems in the Education of Gifted Children</i> . T. S. Henry	1.00
Twentieth Yearbook, 1921, Part I— <i>New Materials of Instruction</i> . Second Report by the Society's Committee	1.30
Twentieth Yearbook, 1921, Part II— <i>Report of the Society's Committee on Silent Reading</i> . M. A. Burgess, S. A. Curtis, C. E. Germane, W. S. Gray, H. A. Greene, Regina R. Heller, J. H. Hoover, J. A. O'Brien, J. L. Packer, Daniel Starch, W. W. Theisen, G. A. Yoakam, and representatives of other school systems	1.10
Twenty-First Yearbook, 1922, Parts I and II— <i>Intelligence Tests and Their Use</i> . Part I— <i>The Nature, History, and General Principles of Intelligence Testing</i> . E. L. Thorndike, S. S. Colvin, Harold Rugg, G. M. Whipple. Part II— <i>The Administrative Use of Intelligence Tests</i> . H. W. Holmes, W. K. Layton, Helen Davis, Agnes L. Rogers, Rudolf Pintner, M. R. Trabue, W. S. Miller, Bessie L. Gambrell, and others. The two parts are bound together	1.60
Twenty-Second Yearbook, 1923, Part I— <i>English Composition: Its Aims, Methods, and Measurements</i> . Earl Hudelson	1.10
Twenty-Second Yearbook, 1923, Part II— <i>The Social Studies in the Elementary and Secondary School</i> . A. S. Barr, J. J. Coss, Henry Harap, R. W. Hatch, H. C. Hill, Ernest Horn, C. H. Judd, L. C. Marshall, F. M. McMurtry, Earle Rugg, H. O. Rugg, Emma Scheweppe, Mabel Snedaker, and C. W. Washburne	1.50
Twenty-Third Yearbook, 1924, Part I— <i>The Education of Gifted Children</i> . Report of the Society's Committee. Guy M. Whipple, Chairman	1.75

Twenty-Third Yearbook, 1924, Part II— <i>Vocational Guidance and Vocational Education for Industries</i> . A. H. Edgerton and others	1.75
Twenty-Fourth Yearbook, 1925, Part I— <i>Report of the National Committee on Reading</i> . W. S. Gray, Chairman, F. W. Ballou, Rose L. Hardy, Ernest Horn, Frances Jenkins, S. A. Leonard, Estaline Wilson, and Laura Zirbes	1.50
Twenty-Fourth Yearbook, 1925, Part II— <i>Adapting the Schools to Individual Differences</i> . Report of the Society's Committee. Carleton W. Washburne, Chairman	1.50
Twenty-Fifth Yearbook, 1926, Part I— <i>The Present Status of Safety Education</i> . Report of the Society's Committee. Guy M. Whipple, Chairman	1.75
Twenty-Fifth Yearbook, 1926, Part II— <i>Extra-Curricular Activities</i> . Report of the Society's Committee. Leonard V. Koos, Chairman	1.50
Twenty-Sixth Yearbook, 1927, Part I— <i>Curriculum-Making: Past and Present</i> . Report of the Society's Committee. Harold O. Rugg, Chairman	1.75
Twenty-Sixth Yearbook, 1927, Part II— <i>The Foundations of Curriculum-Making</i> . Prepared by individual members of the Society's Committee. Harold O. Rugg, Chairman	1.50
Twenty-Seventh Yearbook, 1928, Part I— <i>Nature and Nurture: Their Influence Upon Intelligence</i> . Prepared by the Society's Committee. Lewis M. Terman, Chairman	1.75
Twenty-Seventh Yearbook, 1928, Part II— <i>Nature and Nurture: Their Influence upon Achievement</i> . Prepared by the Society's Committee. Lewis M. Terman, Chairman	1.75
Twenty-Eighth Yearbook, 1929, Parts I and II— <i>Preschool and Parental Education</i> . Part I— <i>Organization and Development</i> . Part II— <i>Research and Method</i> . Prepared by the Society's Committee. Lois H. Meek, Chairman. Bound in one volume. Cloth Edition	5.00
Paper Edition	3.25
Twenty-Ninth Yearbook, 1930, Parts I and II— <i>Report of the Society's Committee on Arithmetic</i> . Part I— <i>Some Aspects of Modern Thought on Arithmetic</i> . Part II— <i>Research in Arithmetic</i> . Prepared by the Society's Committee. F. B. Knight, Chairman. Bound in one volume. Cloth Edition	5.00
Paper Edition	3.25
Thirtieth Yearbook, 1931, Part I— <i>The Status of Rural Education</i> . First Report of the Society's Committee on Rural Education. Orville G. Brim, Chairman. Cloth	2.50
Paper	1.75
Thirtieth Yearbook, 1931, Part II— <i>The Textbook in American Education</i> . Report of the Society's Committee on the Textbook. J. B. Edmonson, Chairman. Cloth	2.50
Paper	1.75
Thirty-First Yearbook, 1932, Part I— <i>A Program for Teaching Science</i> . Prepared by the Society's Committee on the Teaching of Science. S. Ralph Powers, Chairman. Cloth	2.50
Paper	1.75
Thirty-First Yearbook, 1932, Part II— <i>Changes and Experiments in Liberal-Arts Education</i> . Prepared by Kathryn McHale, with numerous collaborators. Cloth	2.50
Paper	1.75
Thirty-Second Yearbook, 1933— <i>The Teaching of Geography</i> . Prepared by the Society's Committee on the Teaching of Geography. A. E. Parkins, Chairman. Cloth	4.50
Paper	3.00
Thirty-Third Yearbook, 1934, Part I— <i>The Planning and Construction of School Buildings</i> . Prepared by the Society's Committee on School Buildings. N. L. Engelhardt, Chairman. Cloth	2.50
Paper	1.75
Thirty-Third Yearbook, 1934, Part II— <i>The Activity Movement</i> . Prepared by the Society's Committee on the Activity Movement. Lois Coffey Mossman, Chairman. Cloth	2.50
Paper	1.75
Thirty-Fourth Yearbook, 1935— <i>Educational Diagnosis</i> . Prepared by the Society's Committee on Educational Diagnosis. L. J. Brueckner, Chairman. Cloth	4.25
Paper	3.00
Thirty-Fifth Yearbook, 1936, Part I— <i>The Grouping of Pupils</i> . Prepared by the Society's Committee. W. W. Coxe, Chairman. Cloth	2.50
Paper	1.75
Thirty-Fifth Yearbook, 1936, Part II— <i>Music Education</i> . Prepared by the Society's Committee. W. L. Uhl, Chairman. Cloth	2.50
Paper	1.75

